

May 10, 1932.

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SEMAPHORE AND TRACK FOR TOY RAILWAYS

Filed May 26, 1926

3 Sheets-Sheet 1

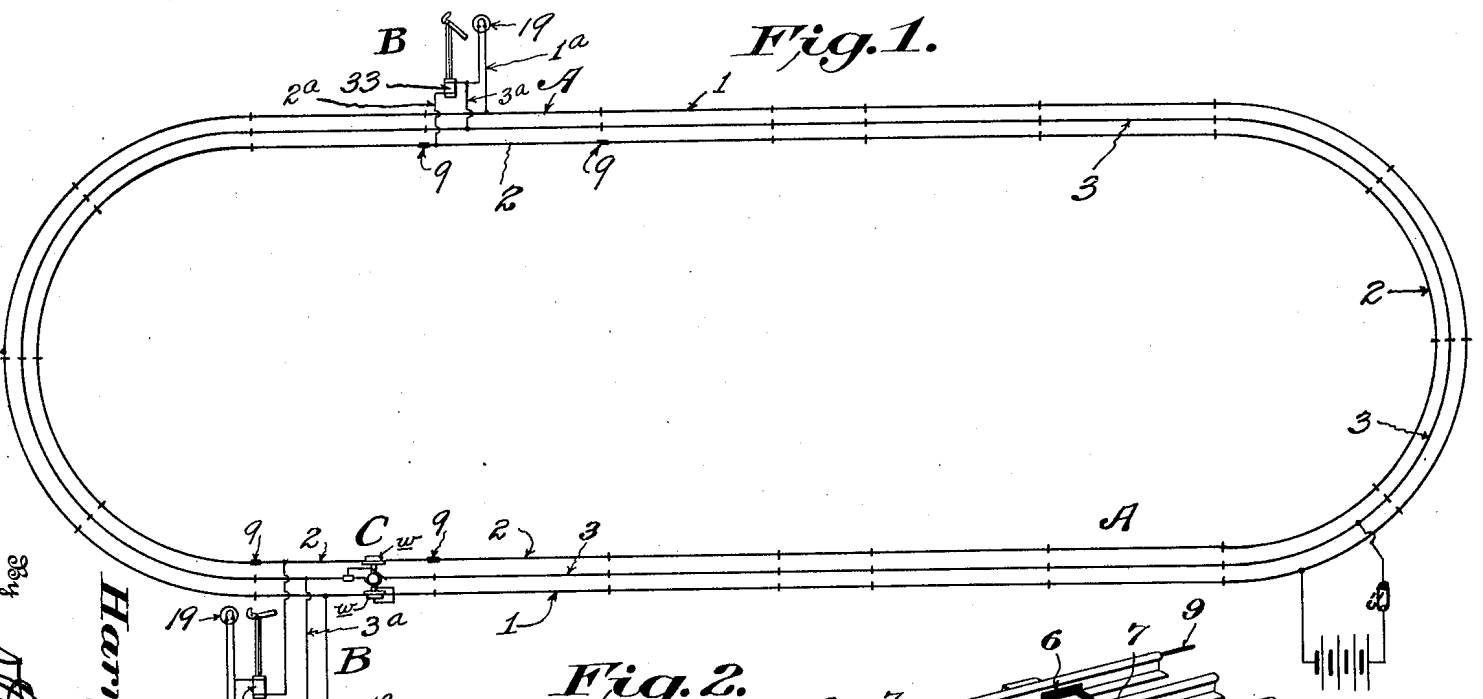


Fig. 1.

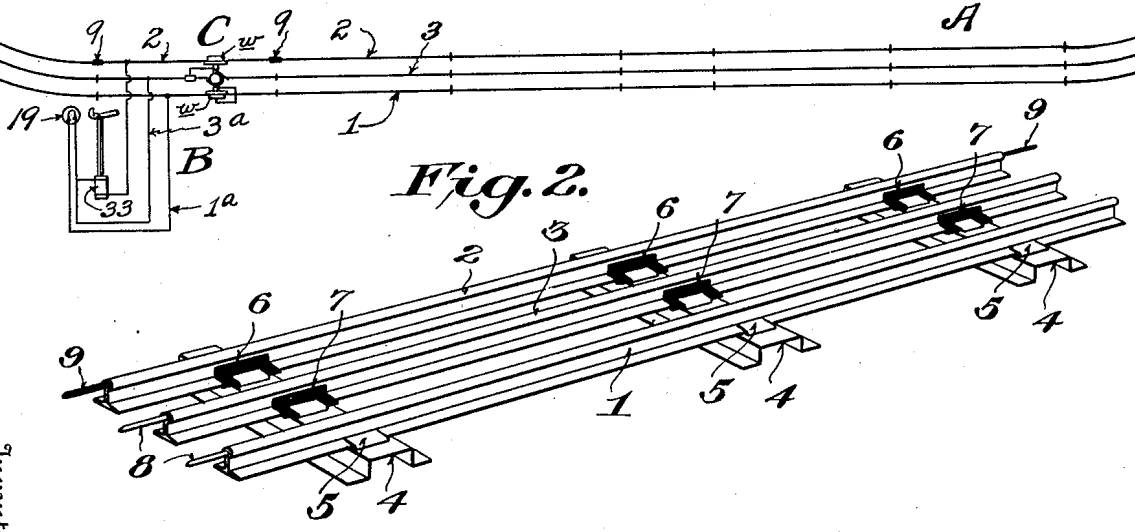


Fig. 2.

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Fig. 3.

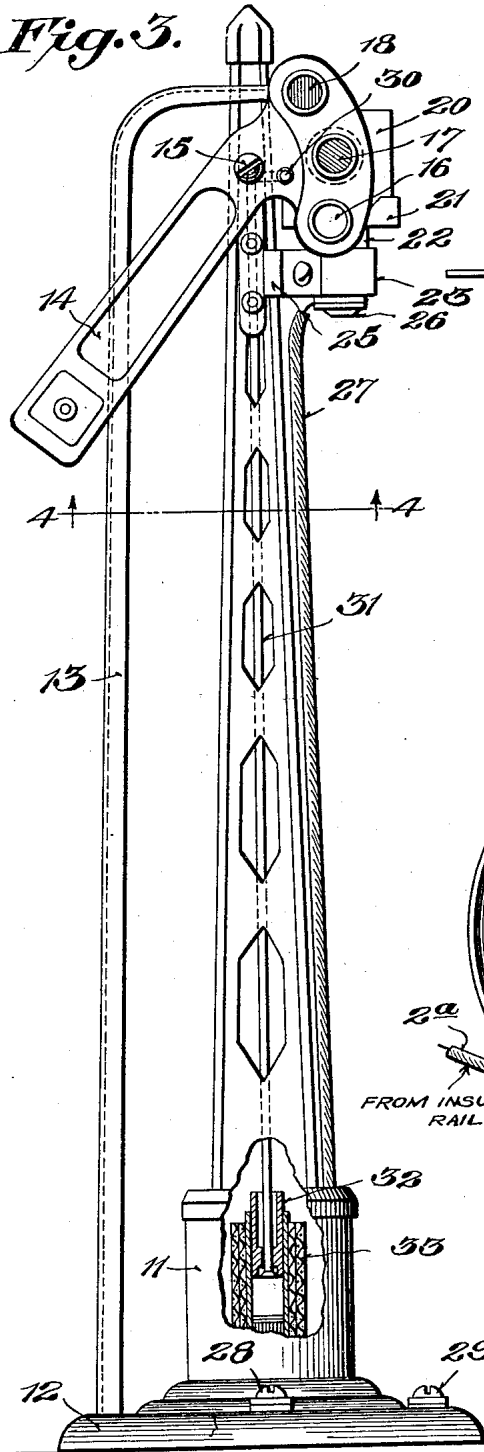


Fig. 4.

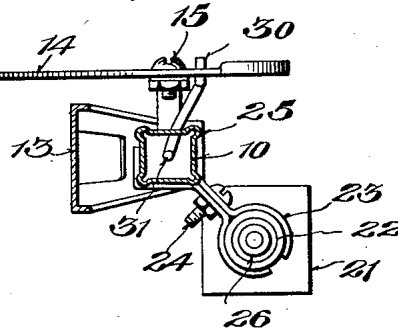
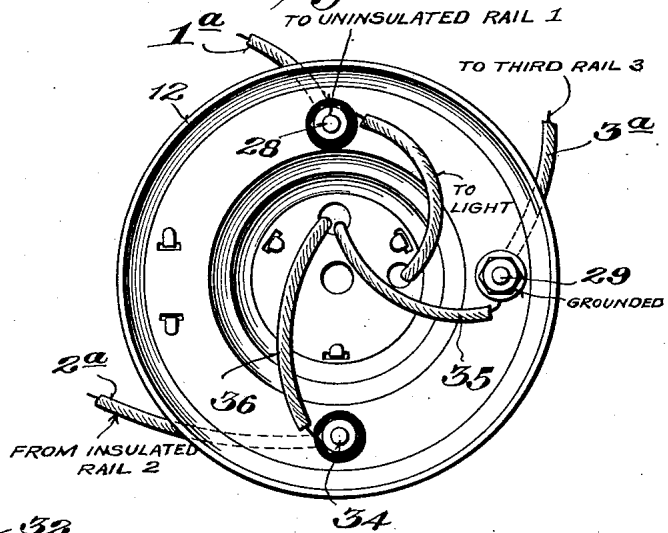


Fig. 5.



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Fig. 6.

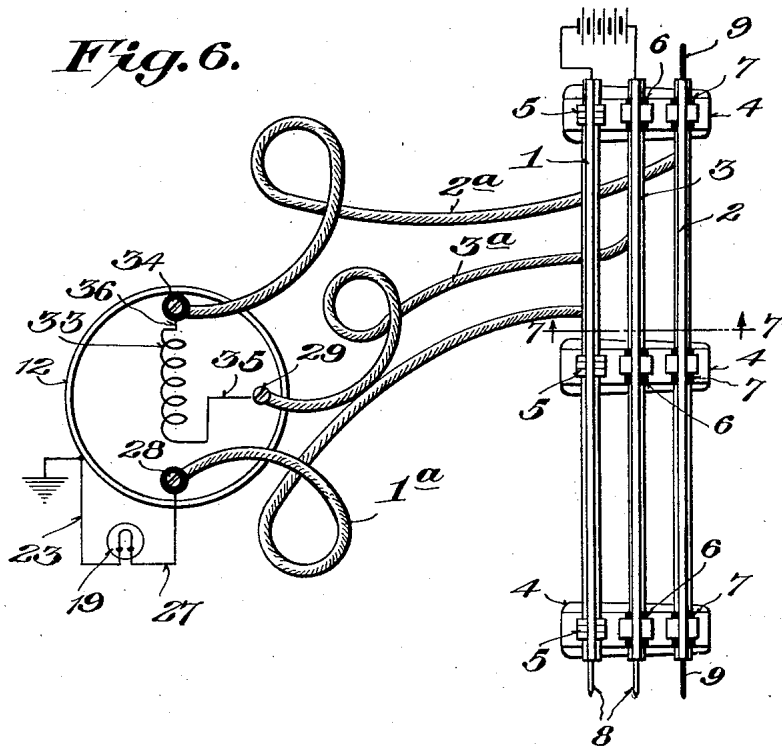
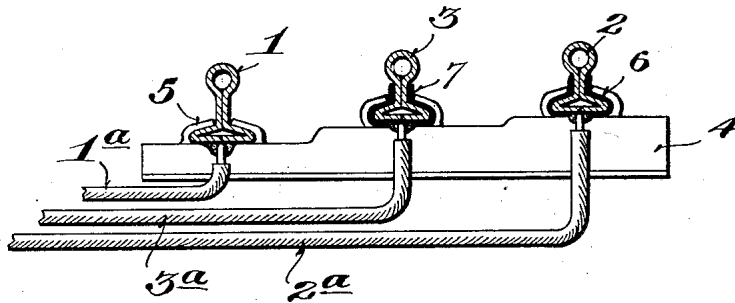


Fig. 7.



WITNESSES:-

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UNITED STATES PATENT OFFICE

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SEMAPHORE AND TRACK FOR TOY RAILWAYS

Application filed May 26, 1926. Serial No. 111,845.

This invention relates to toy railways and more particularly to an automatic signal or the like operating in conjunction with a special track section.

To that end the invention contemplates a semaphore device including a signal lamp adapted to be continuously illuminated and an electro-magnetically operated semaphore arm which is caused to be actuated when the train enters the special track section. That is to say, the signal lamp will be illuminated continuously while the system is in operation but the semaphore will be operated only when the train passes through the special track section due to the closing of the circuit by the train from one track rail to the other, because one of the track rails is insulated from the metallic ties and the rails of adjacent track sections so that it is completely and electrically isolated from the ground circuit of the track except when a train passes thereover.

Accordingly, one of the objects of the invention is to provide a signal device and special track section therefor, the said track section being adapted to be placed in alinement with other track sections of a loop, or the like, so that when the train passes over the special section the electro-magnetically operated part of the signal will be actuated. In that connection it is one of the objects of the invention to provide a track section having the wires connected to the rails and also connected with the various terminal posts of the semaphore device in such a way that inexperienced persons may readily set up the signal for use while at the same time the wiring is reduced to a minimum.

A further object of the invention is to provide a special track section adapted for use in connection with automatic devices in general, the same including spaced wheel bearing rails and a third intermediate conductor rail, the said third conductor rail as well as the wheel bearing rails being electrically in-

ulated from the metallic ties. As a part of the feature of completely insulating and isolating one of the wheel bearing rails it is proposed to use fibre joint-pins for connecting the tubular head of the special section with the tubular heads of rails in adjacent track sections.

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

Fig. 1 is a diagrammatic view illustrating the application of the invention.

Fig. 2 is a perspective view of the special track section.

Fig. 3 is a side elevation of the semaphore unit.

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

Fig. 5 is a bottom plan view of the semaphore.

Fig. 6 is a diagrammatic view illustrating the circuits involved.

Fig. 7 is an enlarged detail cross sectional view taken on the line 7—7 of Fig. 6.

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

In carrying out the invention it is proposed to provide a special track section designated generally as A and an automatic device designated generally as B electrically wired or connected therewith, the said device, in the present instance, being a semaphore which not only includes the usual semaphore arm but also a light as will hereinafter more fully appear.

The track section A consists of a pair of wheel bearing rails 1 and 2 together with

an intermediate electrical conductor or third rail 3 all of which are carried upon the metal cross ties 4. The wheel bearing rail 1 is secured to the metal ties by the clips or fastenings 5 which may be struck up from the tie and therefore the said wheel bearing rail 1 is in metallic and electrical contact with the ties. However, the other track rail 2 is insulated from each tie by means of suitable insulations 6 of fibre or its equivalent, and likewise the third rail 3 is completely insulated from the metallic ties by the insulations 7.

For the purpose of connecting the tubular hollow heads of the rails which are of conventional toy design with the rails of an adjacent track section (all of the wheel bearing rails of which are in metallic contact with the ties) suitable metallic joint pins are employed. As shown in Fig. 2, these metallic joint pins designated as 8 are employed for connecting the wheel bearing rail 1 as well as the third rail 3 with corresponding rails in adjacent track sections, but in the case of the insulated wheel bearing rail 2 an insulated joint pin 9 is used at each end of the rail.

It will therefore be apparent that all of the rails of the track section A are insulated from each other, and that one of the wheel bearing rails, namely 2, is not only insulated from the ties of its own section, but also from the rails of an adjacent track section.

The automatic device B preferably consists of a metallic frame including a tower or post 10 supported upon a housing 11 which is in turn carried by an inverted cup-like base 12. To give the semaphore a more realistic appearance a ladder 13 may also be used, the said ladder being connected at its lower end with the base 12 and at its upper end with the top of the tower 10. At the upper end of the post it is provided with a swinging semaphore arm designated as 14 which is pivotally supported on the bracket 15 carried by the post. The same semaphore arm is provided with the white, green and red lenses 16, 17 and 18 respectively, adapted to be brought into position before a signal lamp 19 contained within an apertured housing 20. The housing 20 includes a base 21 having a socket portion 22 depending therefrom to receive the metallic screw plug of the lamp 19 (see Fig. 6). The metallic socket 22 is engaged by a clamp 23 which consists of two members held together by a screw or equivalent fastening 24, one end of said members constituting the clamp and the opposite ends engaging the post as at 25 to support the entire signal housing.

The socket member 22 being in electrical contact with the plug of the lamp, and the bracket for supporting the socket as well as the post 10 being metallic it will be apparent that the screw plug of the lamp is grounded to the post, and the post in turn is grounded

to the housing 11 and base 12, thereby forming one of the lines of the circuit for the lamp 19. The socket 22 is provided at the bottom thereof with an insulated element 26 adapted to have connected thereto a wire 27, the other end of which wire connects with a terminal post 28 carried by but insulated from the base 12. The wire 27 forms a part of a circuit for furnishing current to the center plug contact of the lamp 19. The insulated terminal post 28 is connected by the wire 1^a with the uninsulated wheel bearing rail 1, and as will be observed from Fig. 6 the base 12 is electrically connected to the third rail 3 by the wire 3^a, the said wire 3^a connecting with the terminal 29 on the base and the said terminal being in metallic contact therewith. As the third rail 3 is one of the main current conductors of the track system, and likewise the rail 1 is the other current carrying conductor of the entire track system it will be apparent that all while the rails 1 and 3 are electrically charged, the lamp 19 will continuously burn. In other words, since the lamp 19 is grounded to the semaphore frame and the wire 3^a is grounded to the frame and to the third rail, and an insulated connection leads from the wheel bearing rail 1 to the center plug contact of the lamp, a complete and continuously closed circuit is formed to the lamp.

The semaphore arm 14 is connected as at 30 with an operating rod 31 arranged within the post 10 and having a core 32 at its lower end operating within an electro-magnet 33. This electro-magnet is included in circuit with the so-called grounded terminal post 29 and insulated post 34 by means of the wires 35 and 36 as will be clearly apparent from Figs. 5 and 6. As previously indicated the terminal post 29 is connected with the third rail 3 by the wire 3^a, and therefore current from the third rail may enter the electro-magnet 33 and thence pass to the insulated terminal 34 carried by the base 12, and from there pass through the wire 2^a to the insulated rail 2 of the track section, only, however, when a circuit closer bridges the wheel bearing rails 1 and 2. Ordinarily this circuit closer is in the form of wheels and the axles of a passing car or train of cars as diagrammatically indicated at C in Fig. 1. That is to say, when a car or train is passing over the section A, the wheels thereof indicated as W in Fig. 1 have a bearing contact with the rails 1 and 2, and since the wheel bearing rail 1 is a part of the electrical circuit, the metallic wheels and axle will permit the current to pass from the rail 1 to the rail 2 and thus complete the circuit to the magnet 33 which will have the effect of pulling the core 32 into the magnet and consequently pull downwardly on the semaphore arm through the rod connection 31. If it were not for the insulated rail 2 the semaphore would obviously be continu-

ously held elevated because its magnet would always be in circuit, but by having the rail 2 completely insulated from the rest of the track, current can only be shunted thereto through the metallic wheels and axles of a passing car or train. Therefore, the arrangement shown permits of using a continuously burning light 19 and an intermittently operated semaphore or other automatic electro-magnetically controlled device such for example as a crossing gate. That a novel arrangement is effected by the use of the special track section A, will be clearly apparent.

The present device provides a simple and practical accessory for toy railway track systems.

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. A toy metallic signal tower for toy railway systems and operating means therefor including a track section comprising metal ties, two wheel bearing rails secured to said ties, and one rail being insulated from the ties and the other in metallic contact therewith, a third rail also insulated from the ties, an electrically operated semaphore signal member mounted on the tower and connected electrically with said insulated wheel bearing rail and insulated third rail, a lamp, and electrical connections respectively between said uninsulated wheel bearing rail and said tower, said tower being electrically connected with said third rail.

2. A toy metallic signal tower for toy railway systems and operating means therefor, including, a track section, comprising metal ties and two wheel bearing rails mounted on said ties and one rail being insulated from the ties and the other being uninsulated, a third rail also insulated from the ties, an electrically operated semaphore device connected with said insulated wheel bearing and third rails and adapted for intermittent operation, a lamp, an electrical connection between said lamp and the uninsulated wheel bearing rail, and an electrical connection between the lamp and said metallic tower, said tower being electrically connected with the third rail.

3. A toy metallic signal tower for toy railway systems and operating means therefor including a track section comprising metal ties, two wheel bearing rails carried by said ties one of which is insulated and the other of which is uninsulated from said ties and a third rail carried by and insulated from said ties, a metallic base for supporting the tower, an electrical connection between said third

rail and the base, an electro-magnet having one end of its winding grounded to said base, an electrical lamp supported by the tower and grounded thereto and an electrical connection between the insulated wheel bearing rail and the electro-magnet, an insulated terminal on the base, an electrical connection between the uninsulated wheel bearing rail and the said terminal, and an electrical connection between said terminal and the lamp.

In testimony whereof I hereunto affix my signature.

HARRY S. BECKER.

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