Dec. 8, 1925. 1,564,912

W. E. THORN

TOY RAILWAY SIGNALING SYSTEM

Filed July 2, 1924

Fig. 1

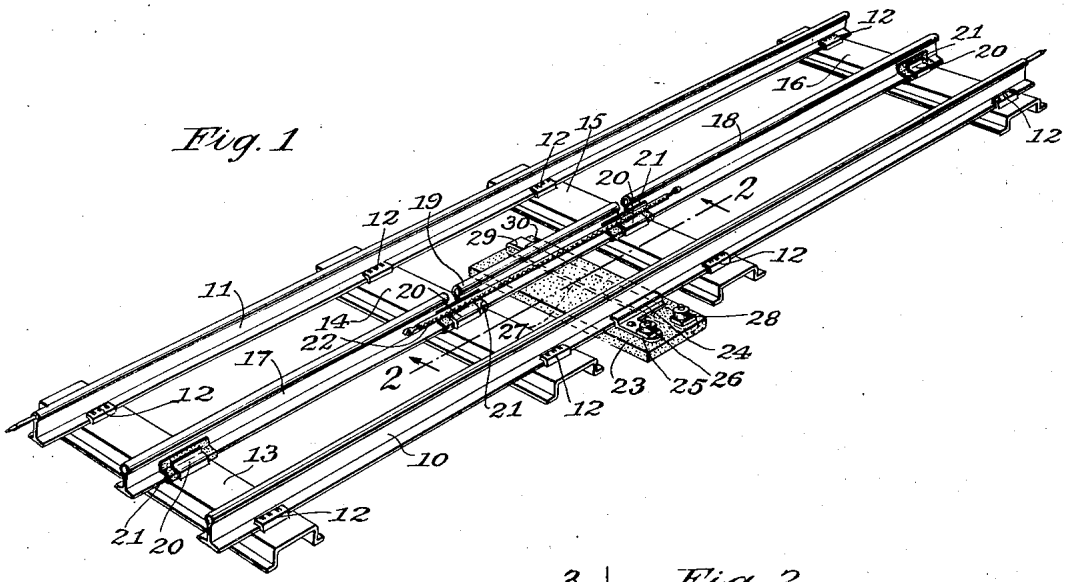


Fig. 2

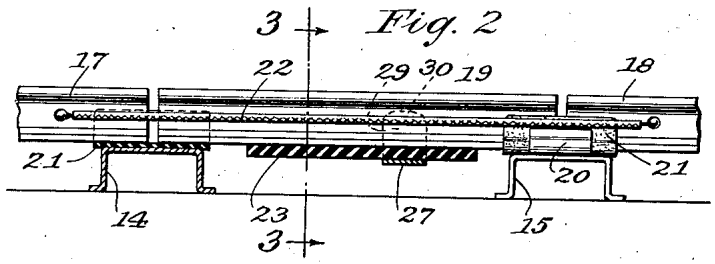


Fig. 4

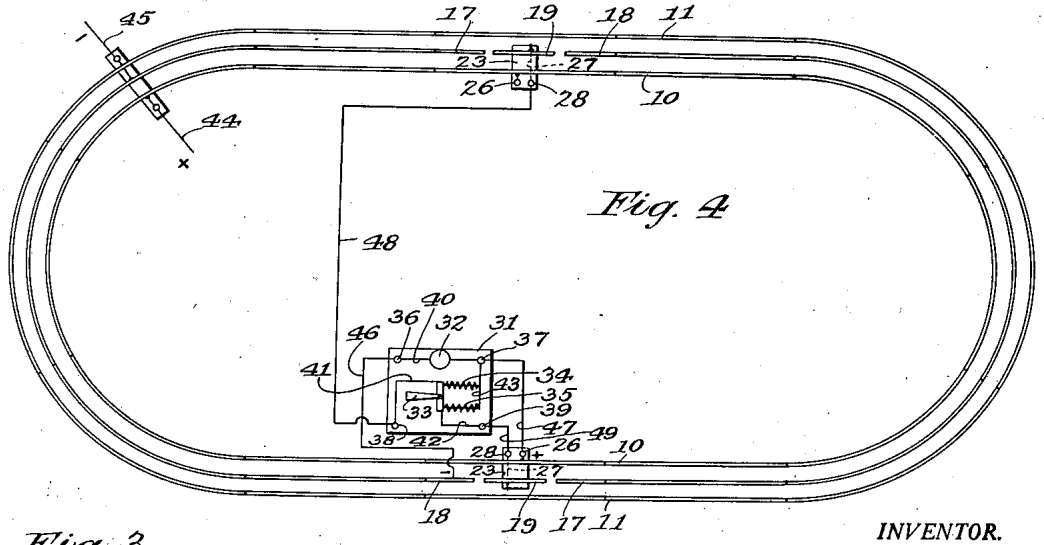
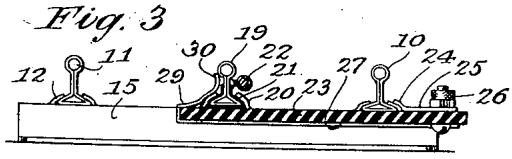


Fig. 3



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UNITED STATES PATENT OFFICE.

WILLIAM E. THORN, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE IVES MANUFACTURING CORPORATION, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

TOY-RAILWAY SIGNALING SYSTEM.

Application filed July 2, 1924. Serial No. 723,639.

To all whom it may concern:

Be it known that WILLIAM E. THORN, a citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, has invented certain new and useful Improvements in Toy-Railway Signaling Systems, of which the following is a specification.

This invention relates to an improved electric toy railway signaling system, and has for an object to provide train actuated means upon the track, adapted as the train passes over the same to operate signaling or other devices, as for instance, a block signal, gate, bell, or other such means.

A further object is to provide such means as a part of a track section, adapted to be assembled as the other sections of the system, and which will require no additional wiring or other connection with the other trackage than the usual end pins.

A still further object is to provide such means in which the only track insulation required will be the usual center or power rail insulation, thereby greatly simplifying and economizing the manufacture.

With the above and other objects in view, an embodiment of the invention is shown in the accompanying drawings, and this embodiment will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claims.

In the drawings:

Fig. 1 is a perspective view of a track section, according to the present embodiment of the invention;

Fig. 2 is a longitudinal sectional view, taken along the line 2—2 of Fig. 1;

Fig. 3 is a transverse sectional view, taken along the line 3—3 of Fig. 2; and

Fig. 4 is a diagrammatic plan view of a track system, in which track sections and signaling means according to the invention are incorporated.

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

Referring to the drawings, the embodiment of the invention shown therein comprises a track section consisting of parallel wheel bearing rails 10 and 11, clipped by lugs 12 upon spaced transverse sleepers 13, 14, 15 and 16, the sleepers 14 and 15 being employed instead of the usual single intermediate sleeper. A third or central power rail, consisting of live rail sections 17 and 18 extending between the sleepers 13 and 14, and 15 and 16, and an intermediate dead rail section 19 spaced from the inner ends of the sections 17 and 18, is clipped to the sleepers by lugs 20, the rail sections being insulated from the sleepers by fibre seats 21 held about the bases of the rail sections by the lugs. It will be noted that the lugs and fibre seats of the sleepers 14 and 15 span the space between the ends of the rail sections, so that an insulated air gap is provided between said ends. The rail sections 17 and 18 are electrically connected by an insulation covered wire 22, having its ends soldered or otherwise suitably secured to said sections.

An insulation plate 23, of fibre or the like, is removably secured between the sleepers 14 and 15 at the under side of the rail 10 and the dead rail section 19, being provided at its outer end with a flanged clip 24, riveted thereto, and having an extension portion 25 electrically connected to a binding post 26, said clip adapted to be engaged over the outer edge of the base of the rail 10. At the under side of the plate 23 there is provided a spring metal strip 27 secured at its outer end to a binding post 28, and being bent, as at 29, about the end of the plate, and being further provided with an upwardly extending curved end portion 30 clipped over the base of the dead rail section 19.

As shown diagrammatically in Fig. 4, the track system is provided with two signal sections, according to the invention, and a signal device 31, adapted as the train passes over one of the signal sections of the track to be operated to one position, and as it passes over the other to be operated to its other position, and in the particular device illustrated a lamp is provided which is continuously lighted.

The signal device illustrated includes a lamp 32, a signal arm 33, a pair of solenoids 34 and 35 cooperatively related with said arm to respectively operate it to its

raised and lowered positions, and four binding posts 36, 37, 38 and 39. The wiring of the device consists of leads 40 connecting the lamp between the posts 36 and 37, a lead 41 connecting the post 38 to the solenoid 34, a lead 42 connecting the post 39 to the solenoid 35, and a lead 43 from the post 37 to the two solenoids. Current is supplied to the system by a plus lead 44 to the rail 10 and a minus lead 45 to the central power rail, the latter being connected to the signal device by a lead 46 therefrom to the post 36, while the rail 10 is connected by a lead 47 from the binding post 26 to the post 37. The dead rail section 19 of one of the signal sections is connected by a lead 48 from the binding post 28 to the post 38, and the dead rail section of the other signal section is connected by a lead 49 to the post 39. With this arrangement the lamp on the signal device, which may be in the form of a semaphore signal tower, remains lighted irrespective of the position of the signal arm.

In operation, the passage of the train over the space between the end of the dead rail section 19 and the live central rail of one of the signal sections causes current to be introduced from said live rail to the dead rail section, through spanning of said space by the power collecting shoe or wheel of the engine, and the solenoid 34 is therefore energized to move the arm 33 to its raised position; and as the train passes over the other signal section, current is similarly introduced into the dead rail section thereof, and the solenoid 35 is energized to return the arm to its lowered position.

It is obvious that various kinds of signaling or other devices may be operated by the improved device, and that other wiring arrangements may be employed. For instance, the signal may be connected to the dead rail section and either of the rails 10 and 11 in a manner to be operated through bridging transversely across the rails by the metal structure of the train as it passes over the dead rail section.

I have illustrated and described a preferred and satisfactory embodiment of the invention, but it will be obvious that changes may be made therein, within the spirit and scope thereof, as defined in the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A track section for electric toy railway systems, comprising spaced wheel bearing rails, a central power rail including a non-current-carrying section insulated from said wheel bearing rails, and adapted to be engaged by the contact device of the train, terminal connections for a signal device, and means electrically connecting said terminal connections to said non-current carrying rail section and one of said wheel bearing rails, whereby the circuit to said terminal connections is completed as the contact device simultaneously contacts with and electrically connects the power rail and said non-current-carrying section.

2. A track section for electric toy railway systems, comprising spaced wheel bearing rails, a central power rail including two current-carrying sections aligned with and spaced from each other, and a non-current-carrying section aligned with and insulated from said aligned and spaced sections and said wheel bearing rails, and adapted to be engaged by the contact of the train, terminal connections for a signal device, and means electrically connecting said terminal connections to said non-current carrying section and one of said wheel bearing rails, whereby the circuit to said terminal connections is completed as the contact device simultaneously contacts with and electrically connects one of said current-carrying sections and said non-current-carrying section.

3. A track section for electric toy railway systems, comprising spaced wheel bearing rails, a central power rail including two sections aligned with and spaced from each other, and means between the aligned power rail sections and adapted to be electrically connected to a signal device or the like and whereby the circuit to said device is closed as the contact device of the train bridges the space between one of said sections and said means.

4. In an electric toy railway system, a track including spaced wheel bearing rails and a central rail, said central rail having an insulation gap and a non-current-carrying section adjacent said gap, a signal device electrically connected to one of said wheel bearing rails and said non-current carrying rail, and means for supplying current to said central rail and said last mentioned wheel bearing rail, said device adapted to be operated as the contact device of the train bridges the gap between said central rail and said non-current-carrying section to electrically connect them and introduce current into the latter.

5. A track section for electric toy railway systems, comprising spaced wheel bearing rails, a central power rail including two current-carrying end sections aligned with and spaced from each other, and a non-current-carrying section disposed in the space between said end sections and aligned with and spaced at its ends from the inner ends of said sections, an electrical connector between said end sections, a plurality of spaced transversely disposed supporting sleepers having clamping lugs for securing said rails, one of said sleepers being disposed at each end of said non-current-carrying section and

extending beneath the inner ends of said end sections, whereby said single sleepers respectively secure said inner ends of the end sections and said non-current-carrying section, and insulation seats interposed between said sleepers and said central rail sections whereby the latter are insulated from the wheel bearing rails and said spaced non-current-carrying section is insulated from said end sections.

Signed at Bridgeport in the county of Fairfield and State of Connecticut this 26th day of June A. D., 1924.

WILLIAM E. THORN.