July 25, 1933. M. CARUSO 1,919,272

ELECTROMAGNETICALLY OPERATED TRACK SWITCH FOR TOY RAILROADS

Filed March 5, 1927 2 Sheets-Sheet 1

Fig. 1.

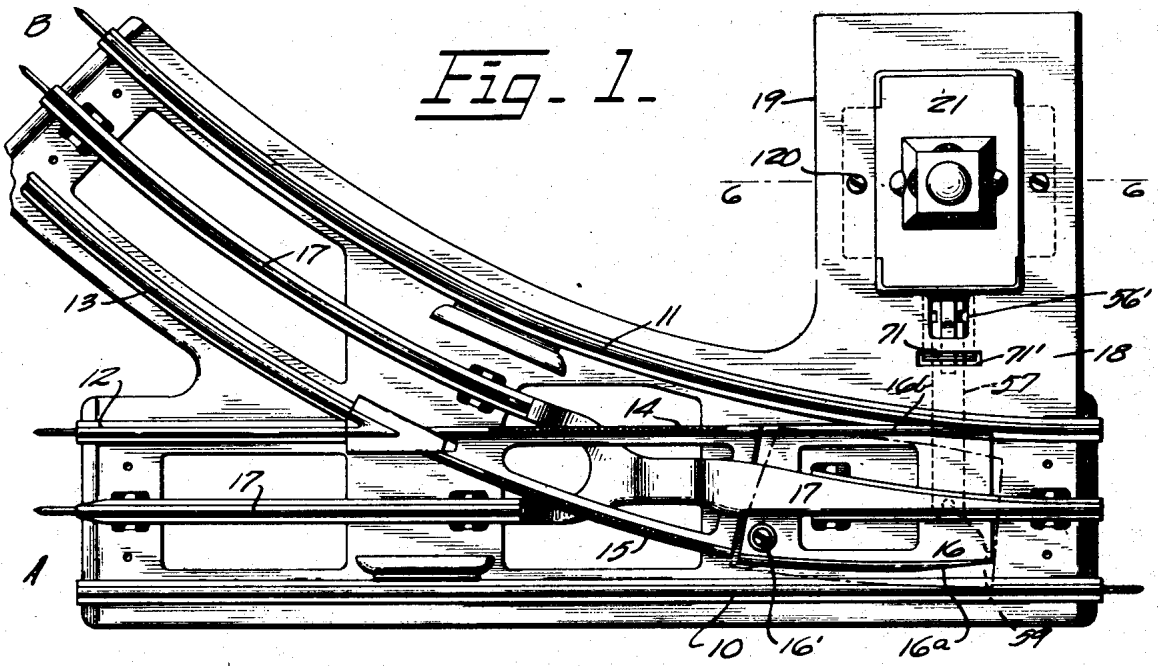


Fig. 3.

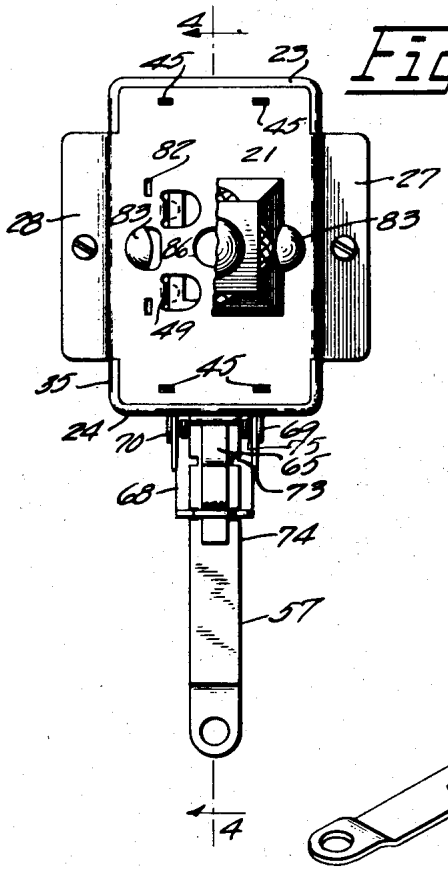
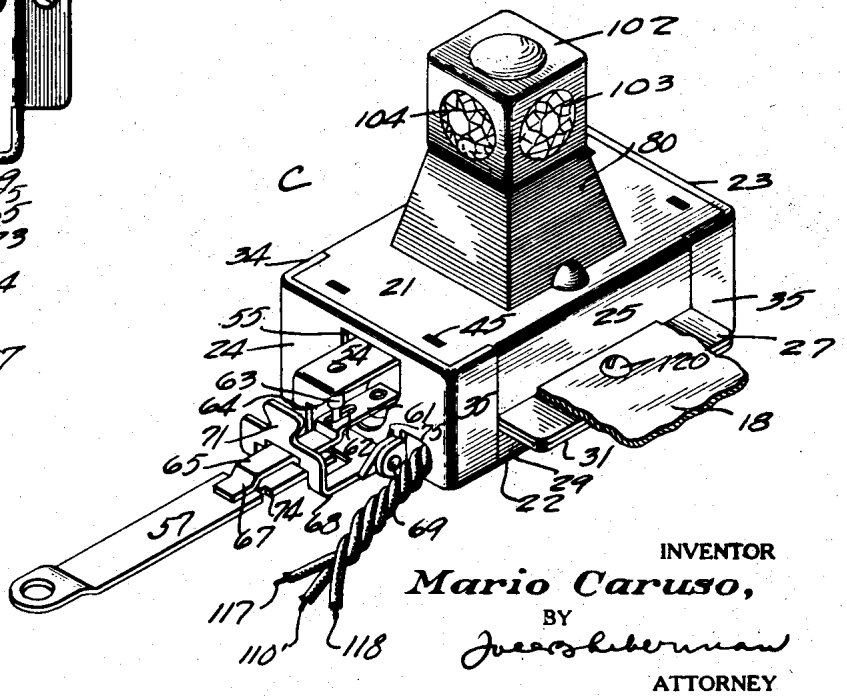


Fig. 2.



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ELECTROMAGNETICALLY OPERATED TRACK SWITCH FOR TOY RAILROADS

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FIG. 4.

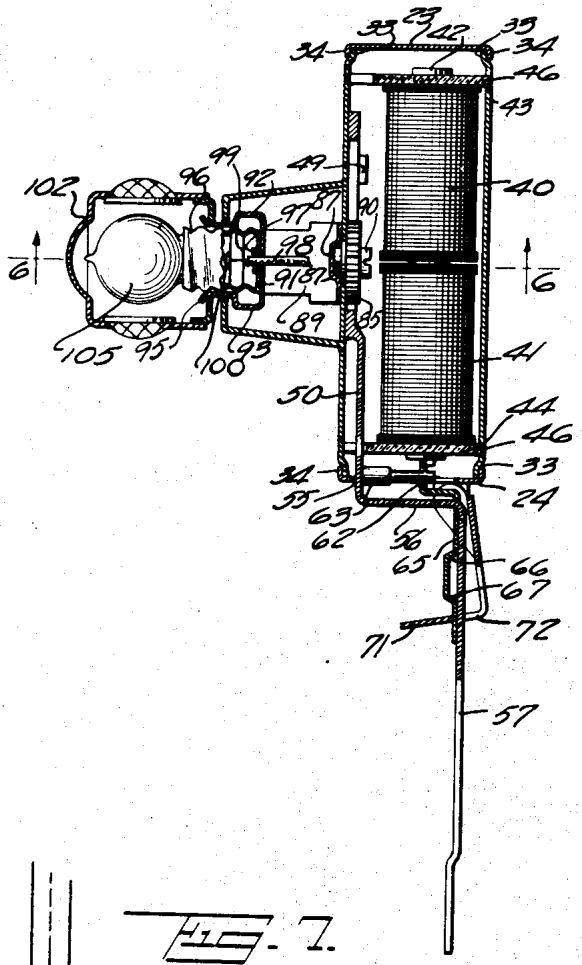


FIG. 5.

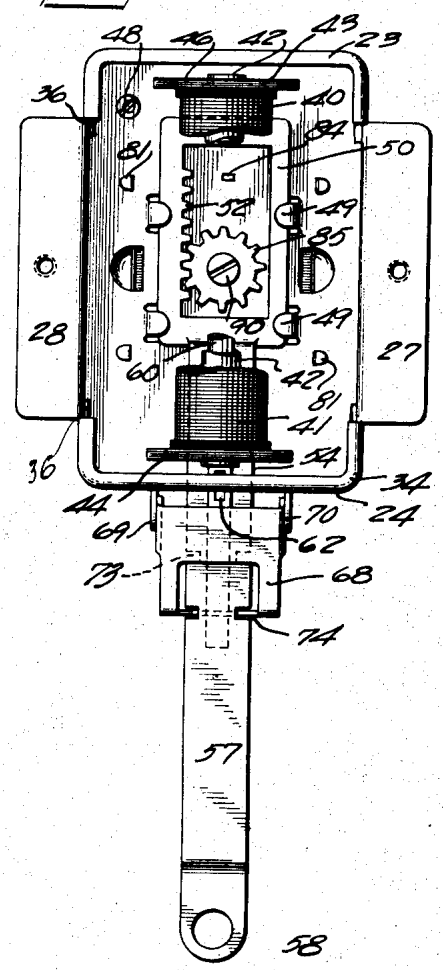


FIG. 7.

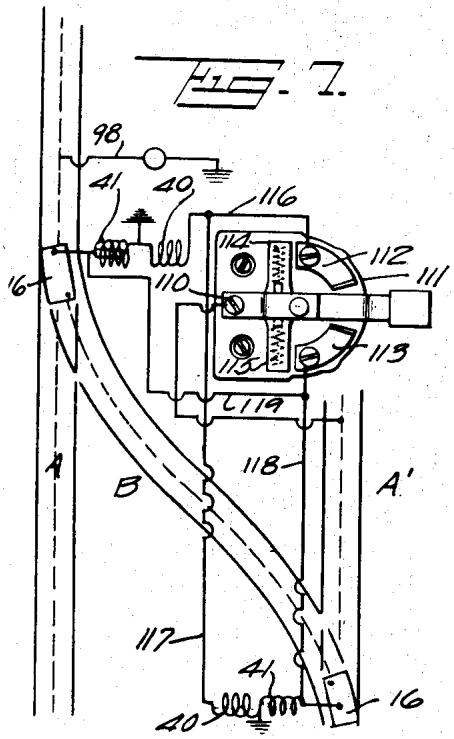
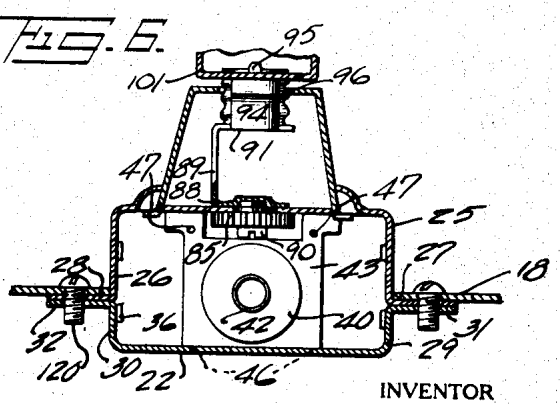


FIG. 6.



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UNITED STATES PATENT OFFICE

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ELECTROMAGNETICALLY OPERATED TRACK SWITCH FOR TOY RAILROADS

Application filed March 5, 1927. Serial No. 172,967.

The present invention relates to electromagnetically operated track switches for toy railroads and is more particularly directed to a combined track switch and signal tower simultaneously operated by magnets.

Whenever one desires to provide a toy railroad layout with turn outs, side tracks, or cross overs, some form of track switch is required. These track switches are frequently employed in pairs, a right and left switch being provided to guide the train as desired. The present invention contemplates an electromagnetically operated track switch which may be remotely controlled from a convenient electric switch placed for example in a switch tower, thereby avoiding the inconvenience of manually setting the track switches. If desired, the pair of switches may be connected to a single electric switch to insure the proper setting of both track switches.

The invention also contemplates the provision of a toy railroad track switch having an electromagnetically operated shift bar for actuating the switch tongue with a latch or other device which is adapted to interengage with the shift bar to hold the shift bar and switch tongue immovable in the extreme positions to which they have been set by the magnets, the device being so arranged that the latch or other device is automatically disengaged from the shift bar whenever it is desired to shift the switch tongue to the other position. The use of such a device permits disconnecting the magnet coils after the track switch is set.

A further object of the present invention is to provide an actuating unit for toy track switches and signals which can be completely assembled and subsequently attached to the track switch section. The present invention contemplates making up a small and compact unit of this nature out of a number of rugged stamped parts designed so that the unit may be assembled readily and so that the moving parts are totally inclosed to protect them from damage.

Other and further objects of the invention will appear as the description proceeds.

The present application is filed as a continuation in part of copending application, Serial No. 95,058, filed March 16, 1926, for toy electric railroads.

The accompanying drawings show, for purposes of illustrating the invention, one of the many possible embodiments in which the invention may take form, it being understood that the drawings are illustrative of the invention rather than limiting the same.

In these drawings:

Figure 1 is a top plan view of a track switch for toy electric railroads;

Figure 2 is a perspective view of the switch tower and actuating unit for the movable switch tongue;

Figure 3 is a top plan view of the unit shown in Figure 2, parts being broken away;

Figure 4 is a sectional view on the line 4—4 of Figure 3;

Figure 5 is an inverted plan view of the unit, the bottom plate being omitted and the coils being broken away;

Figure 6 is a sectional view taken on the lines 6—6 of Figures 1 and 4; and

Figure 7 is a wiring diagram.

In these drawings a preferred embodiment of a track switch section is illustrated, together with an electromagnetic operating device for the track switch. The track construction shown in Figure 1 is described in detail and claimed in my co-pending application for "Toy railroad track construction" filed March 4, 1927, Serial Number 172,777, now Patent No. 1,701,947. This track switch section has a main line A and a branch line B and is provided with suitable fixed wheel bearing rails 10, 11, 12, 13, 14 and 15 together with a movable switch tongue 16 having guiding rails 16a and 16b and pivoted at 16' for guiding the toy train through the main line A or onto the branch line B. It is also provided with a continuous third rail 17 for supplying current through the track section. The rails and switch tongue are mounted on a rail support 18 preferably made of sheet metal and having an extension 19 for supporting the actuating unit of the switch operating mechanism, the extension having a rectangularly shaped aperture 20 to receive the same.

This actuating unit C shown in detail in Figures 2 and 6, inclusive, is adapted to be mounted in the aperture 20 in the base of the track switch. The operating parts of this unit are inclosed in and supported by an inclosing housing or casing here shown in the form of a generally rectangular box.

The housing is made up of a top plate 21, a bottom plate 22 and two end members 23 and 24. The upper plate 21 has downwardly bent side walls 25 and 26 which are shorter than the plate and which are provided with outwardly extending flanges 27 and 28. The lower plate 22 is here shown the same size as the upper plate 21 and is provided with upwardly bent side walls 29 and 30 and outwardly extending flanges 31 and 32 similar to the corresponding parts on the upper plate. As here shown, however, the side walls of the lower stamping are shallower than the side walls of the upper stamping. The ends of the upper and lower plates and the side edges of these plates (beyond the side walls 25, 26, 29 and 30) are bent inwardly as indicated at 33 to receive the end members 23 and 24. These end members are in the form of sheet metal stampings having narrow flanges 34 which overlie the inwardly bent edges 33 of the upper and lower plates. These end members are also provided with inwardly bent sides 35 which extend over to the outer edges of the side walls 25, 26, 29 and 30, and prongs 36 engage inside these side walls. The stampings 21, 22, 23 and 24 which make up this housing are preferably so constructed that the entire housing may be held together by the friction between the end plates and the top and bottom plates.

A pair of magnet coils 40 and 41 are mounted on a non-magnetic tube 42 and this tube is mounted on cross pieces 43 and 44 preferably made of insulating material. These insulating supports preferably have reduced ends which project through holes in the upper plate as indicated at 45 (see Figures 2 and 3). Each of these insulating supports preferably has a reduced end 46 to pass through a comparatively large slot in the lower plate 21. They are also provided with small holes 47 to receive wires from the coils 41 and 42. These wires may be passed through the holes and wound about the adjacent part of the insulating cross piece to provide a suitable place for soldering the lead wires. The coils 41 and 42 may be grounded to the frame by fastening the exposed wires under a screw indicated by number 48.

The upper plate is provided with downwardly bent prongs 49 which guide an actuating or shift bar 50. As shown, this shift bar is larger at the inner end 51 and is provided with rack teeth 52 for the purpose to be described. The shift bar is offset at 53 and made narrow as indicated at 54. It then extends out through a hole or aperture 55 in the end member 24 and is bent downwardly as indicated at 56 to come below the level of the rail supporting stamping 18. The stamping has an opening 56′ to accommodate the shift bar. The depressed end 57 of the actuating bar 50 passes underneath the stamping 18 and is apertured as indicated at 58 to permit the attaching of it to a connecting pin 59 connected with the movable switch tongue 16.

A plunger or armature 60 is slidably mounted in the non-magnetic tube 42 so as to be under the control of the magnet coils 40 and 41. This plunger is connected with a strap 61 having an elongated slot 62 into which a pin 63 carried by the shift bar 50 projects. The strap 61 extends beyond the slot 62 and passes through a hole 64 in the portion 56 of the actuating or shift bar. It then extends outwardly along the upper surface of the portion 57 of the shift bar as indicated at 65. This overlying portion of the strap, connected with the plunger, is provided with spaced cams 66 and 67. A latch or catch member 68 is pivoted on lugs 69 and 70 struck outwardly from the end member 24. This latch is upwardly bent at its free end as indicated at 71 and is provided with a hole 72 through which the actuating shift bar 57 and the extension 65 from the plunger are allowed to pass. The shift bar 57 is provided with pairs of spaced notches 73 and 74 into which the upwardly bent part 71 of the latch may drop. A spring 75 is provided to hold the latch down.

The signal above referred to is mounted on the upper side of the upper plate 31. As here indicated, this signal has an outer pyramid shaped base 80 made out of a sheet metal stamping. It is fastened to the upper plate 21 of the housing by prongs 81 passing through holes 82 in the upper plate 21 and is further held in place by upwardly bent ears 83 in the top plate and by projections 84 which pass through holes in the top plate.

A gear wheel 85 in mesh with the rack 52 on the actuating bar 50 is rotatably carried in a hole 86 in the center of the upper stamping 21. The upper end of this gear member 85 is squared as indicated in dotted lines in Figure 5 and engages a similarly shaped depression 87 in the foot 88 of a stamping 89 carried inside the signal base 80. A screw 90 fastens the gear member to the stamping 89 and fastens these two parts to the top stamping 81 of the housing. The stamping 89 is bent inwardly as indicated at 91 and then is provided with two upwardly extending ears 92 and 93 which are bent inwardly as indicated at 94 and reduced at their upper ends as indicated at 95 to provide prongs. A screw threaded lamp socket shell 96 is carried between the arms of the upper end of the stamping 89 and is fastened to this stamping by riveting over a portion of the

stamping as indicated at 97 against the base of the socket. A lead wire 98 passes up from the housing through the base 80 and the hole formed by the rivet 97 through an insulating washer 99 and is connected to a center contact 100. The prongs 95 on the upper end of the stamping 89 are folded over onto the stamping 101 to fasten the two stampings 89 and 101 together. The stamping 101 supports the cap 102 carrying the transparencies 103 and 104, and a lamp 105 is placed in the socket.

In the wiring diagram of Figure 7, two track switches and switch actuating mechanisms together with interconnected wiring for controlling the switches from a common point are shown. Two main lines are diagrammatically indicated at A and A' while the branch line is indicated by the letter "B" in the form of a cross over. The movable switch tongues 16 and stationary rails are arranged to control train movements through either of the main lines or onto or off from the branch line B. A control switch D has one terminal 110 connected by a wire 110' with the third rail 17 at any convenient point. A movable switch arm 111 is arranged to conduct the current to one or the other of the two fixed contacts 112 and 113. This switch arm is preferably under the control of coiled springs 114 and 115 set opposite one another and arranged to normally hold the switch arm in mid-position and out of contact with the terminals 112 and 113. The contact 112 is connected by wires 116 and 117 with the coils 40 of the switch actuating devices while the other terminal 113 is connected by wires 118 and 119 with the other coils 41 of the switch actuating devices, these coils being grounded as heretofore indicated by means of the screws 48. The signal lamp 105 is preferably connected to the third rail by means of the wire 98 above referred to, which may be soldered to the third rail of the track switch unit, and is grounded through the socket shell 96.

Whenever the control circuit of the magnet coil is energized to shift the armature of the magnet, it will be obvious that the armature will first move the strap 61 connected to it. During this movement the one or the other of the cams 66 or 67 will engage the latch 68 and raise it out of the notches (73 or 74) in which it lies. After the armature has moved sufficiently to take up the lost motion connection provided by the pin 63 and slot 62, the plunger will then carry the shift bar 50 along with it. This motion of the shift bar will be communicated out to the switch tongue 16 and will move it from the full line or dotted line position as shown in Figure 1 or vice versa. The engagement of the wheel guiding rails 16*a* or 16*b* on the switch tongue with the fixed rails 10 and 11 of the track switch, will limit the movement of the switch tongue. The notches 73 and 74 are so spaced that whenever the switch tongue is in either of its extreme positions, one or the other of these notches is opposite the movable latch 68, and the cams 66 and 67 are so spaced that they do not interfere with the catch dropping into place in the notches in the shift bar. This latch therefore locks the shift bar so that it cannot vibrate out of place and securely holds the switch tongue into the position in which it has been moved. It is not necessary to maintain current in the coil.

At the same time that the bar 50 has been operating the switch, it has also turned the signal a quarter revolution. This is on account of the engagement of the rack and pinion 52 and 85 and the turning of the stamping 89 about a vertical axis. In turning this stamping the socket 96, lamp 105 and signal head 102 have been turned as a unit.

In order that one may release the shift bar and set the switch manually, the upper end 71 of the latch 68 passes through a slot 71' in the stamping 18. This makes the latch accessible to be lifted whenever desired and then the switch may be actuated either by taking hold of the switch tongue or by turning the signal head.

In assembling the unit C, the signal tower and its parts are fastened onto the top of the plate 21 in an obvious manner. The actuating bar 50 is then slid into position underneath the prongs 49 and the gear 85 attached. The magnet unit including the coils and the two insulating end members and armature are placed in position and the wires are connected. Then the end members are snapped in position to lock the housing and parts together. The unit may then be tested. The housing may be passed upwardly through the hole 20 in the stamping 18 and to bring it to the position indicated in Figure 1, whereupon, it may be fastened in place by screws 120 which are threaded into holes in the flanges 31 and 32. The shift bar 57 is then connected with the switch tongue.

It is obvious that the invention may be embodied in many forms and constructions, and I wish it to be understood that the particular form shown is but one of the many forms. Various modifications and changes being possible, I do not limit myself in any way with respect thereto.

What is claimed is:

1. In combination, a unitary track switch section for toy electric railroads having fixed wheel bearing rails and a movable switch tongue for controlling the movement of a toy train through the main line or onto a branch line, a reciprocable shift bar connected at one end to the switch tongue for actuating the same, guides for the other end of the shift bar, and a latch, the latch and shift bar having interengaging portions to hold the shift bar and switch tongue immovable in their extreme positions.

2. In combination, a unitary track switch section for toy electric railroads having fixed wheel bearing rails and a movable switch tongue for controlling the movement of a toy train through the main line or onto a branch line, a reciprocable shift bar connected at one end to the switch tongue for actuating the same, guides for the other end of the shift bar, a latch, the latch and shift bar having interengaging portions to hold the shift bar and switch tongue immovable in their extreme positions, and electro-magnetically operated devices carried by the track section to one side of the tongue for first releasing the latch and then moving the shift bar to its other extreme position.

3. In a track switch for toy electric railroads, the combination with fixed wheel bearing rails and a movable switch tongue for controlling the movement of a top train through the main line or onto a branch line, of electromagnetically controlled switch tongue actuating means, and a locking device to prevent shifting of the switch tongue except upon energization of the switch actuating means to shift the switch tongue, said locking device being manually accessible to permit setting the switch manually and locking it in set position.

4. In a track switch for toy electric railroads, in combination, fixed wheel bearing rails and a movable switch tongue for controlling the passage of a toy train through the main line or onto a branch line, a support for the rails and switch tongue, said support having a lateral extension adjacent the switch tongue, the extension having an opening, a housing having cover members above and below the opening and fastened to the extension, magnet coils supported between the cover members, a shift bar connected to the switch tongue and guided in one of the cover members, an armature in the coils, and connections between the armature and shift bar.

5. In a track switch for toy electric railroads, in combination, fixed wheel bearing rails and a movable switch tongue for controlling the passage of a toy train through the main line or onto a branch line, a support for the rails and switch tongue, said support having a lateral extension adjacent the switch tongue, the extension having an opening, a housing having cover members above and below the opening and fastened to the extension, magnet coils supported between the cover members, a shift bar connected to the switch tongue and guided in one of the cover members, an armature in the coils, connections between the armature and shift bar, and end members carried by the cover members for completing an inclosing housing for the magnet coils, one end member being apertured to accommodate the shift bar.

6. In a combined switch and signal for toy electric railroads, a track switch having a movable switch tongue, a base having an apertured lateral extension adjacent the switch tongue, a plate supported above the aperture, a signal tower above the plate, an oscillatory signal on top of the tower, a pinion connected to the signal, and a reciprocatory member underneath the plate having a rack in mesh with the pinion, the member extending downwardly to pass through the aperture in the extension and being connected underneath the base to the switch tongue to simultaneously shift the switch tongue and the signal.

7. In a combined switch and signal for toy electric railroads, a track switch having a movable switch tongue, a base having an apertured lateral extension adjacent the switch tongue, a plate supported above the aperture, a signal tower above the plate, an oscillatory signal on top of the tower, a pinion connected to the signal, a reciprocatory member underneath the plate having a rack in mesh with the pinion, the member extending downwardly to pass through the aperture in the extension and being connected underneath the base to the switch tongue to simultaneously shift the switch tongue and the signal, magnet coils, and a plunger in the coils connected with the bar for shifting it back and forth.

8. In a combined switch and signal for toy electric railroads, a track switch having a movable switch tongue, a base having an apertured lateral extension adjacent the switch tongue, a plate supported above the aperture, a signal tower above the plate, an oscillatory signal on top of the tower, a pinion connected to the signal, a reciprocatory member underneath the plate having a rack in mesh with the pinion, the member extending downwardly to pass through the aperture in the extension and being connected underneath the base to the switch tongue to simultaneously shift the switch tongue and the signal, coil supporting members extending downwardly from the plate, magnet coils supported in said members, a plunger in the coils connected with the reciprocatory member for shifting it back and forth, and a bottom plate fastened to the upper plate.

9. A combined track switch and signal for toy electric railroads, comprising; fixed wheel bearing rails and a movable switch tongue for controlling the movement of a toy train through the main line or onto the branch line; a support for the rails and switch tongue, said support having a lateral extension adjacent the switch tongue, the extension having an opening; a housing, said housing including a top plate having depending side walls shorter than the plate and provided with outwardly extending flanges, a bottom plate having flanges corresponding with the flanges on the upper plate, and end members frictionally engaging the ends of

the top and bottom plates to hold them together, the housing fitting into the opening in the extension on the rail support and having its flanges fastened to the rail support; a signal tower carried on the upper plate; a movable signal on the signal tower, magnet coils supported between the upper and lower plates of the housing; a shift bar slidably mounted in the housing and operably connected to the movable signal, the shift bar extending underneath the rail support and being coupled to the switch tongue; a plunger in the magnet coils; a lost motion connection between the plunger and shift bar for actuating the bar and connected signal and switch tongue; a pivoted latch engageable with the shift bar to lock it in its extreme position; and cam means actuated by the plunger for disengaging the latch during the take up of the lost motion connection.

10. An actuating device for track switches for toy electric railroads comprising; a housing, said housing including a top plate having depending side walls shorter than the plate and provided with outwardly extending flanges, a bottom plate having flanges corresponding with the flanges on the upper plate, and end members frictionally engaging the ends of the plates for holding the plates together; magnet coils supported on distance pieces extending between the plates; a shift bar slidably mounted in one of the plates and extending out through an opening in one of the end pieces; a plunger in the coils; and a connection between the plunger and shift bar for actuating the bar.

11. An actuating device for track switches for toy electric railroads comprising; a housing, said housing including a top plate having depending side walls shorter than the plate and provided with outwardly extending flanges, a bottom plate having flanges corresponding with the flanges on the upper plate, and end members frictionally engaging the ends of the plates for holding the plates together; magnet coils supported on distance pieces extending between the plates; a shift bar slidably mounted in one of the plates and extending out through an opening in one of the end pieces; a plunger in the coils; a connection between the plunger and shift bar for actuating the bar; a pivoted latch engageable with the shift bar to lock it in its extreme position; and means for disengaging the latch when the magnet coil is energized to shift the bar.

12. An actuating device for track switches for toy electric railroads comprising; a housing, said housing including a top plate having depending side walls shorter than the plate and provided with outwardly extending flanges, a bottom plate having flanges corresponding with the flanges on the upper plate, and end members frictionally engaging the ends of the plates for holding the plates together; magnet coils supported on distance pieces extending between the plates; a shift bar slidably mounted in one of the plates and extending out through an opening in one of the end pieces; a plunger in the coils; a lost motion connection between the plunger and shift bar for actuating the bar; a pivoted latch engageable with the shift bar to lock it in its extreme position; and means for disengaging the latch when the magnet coil is energized to shift the bar.

13. An actuating device for track switches and signals for toy electric railroads, comprising; a housing, said housing including a top plate having depending side walls shorter than the plate and provided with outwardly extending flanges, a bottom plate having flanges corresponding with the flanges on the upper plate, and end members frictionally engaging the ends of the plates for holding the plates together; a signal rotatably carried on top of the upper plate; magnet coils supported on distance pieces extending between the plates; a shift bar operably connected with the signal slidably mounted in the upper plate and extending out through an opening in one of the end pieces; a plunger in the coils; and a connection between the plunger and shift bar for actuating the bar.

14. In an actuating device for track switches for toy electric railroads, a normally horizontal switch operating shift bar having the switch operating end offset below the raised other end which slidably supports the bar, there being a hole in the portion between the upper and lower portion of the shift bar, a reciprocable armature under the supporting end of the shift bar, an extension from the armature passing through the hole in the shift bar, the extension being above the lower end of the shift bar, a lost motion operating connection between the armature and shift bar, and a latch engageable with the shift bar to lock it in its extreme positions, the extension on the armature having cams to raise the latch during the take up of the lost motion connection.

15. An actuating device for track switches for toy electric railroads, comprising, a housing, a shift bar having its inner end slidably mounted in the upper part of the housing, a pair of magnet coils supported underneath the inner end of the shift bar, an armature in the coils, the outer portion of the shift bar being depressed below the axis of the coils, an extension from the plunger passing through a hole in the shift bar and overlying the outer end thereof, a lost motion connection between the extension and the shift bar, a pivoted latch engageable with the shift bar to lock it in either extreme position, and cams on the extension for releasing the latch during the take up of the lost motion connection.

16. A housing for the actuating device for

an electric toy railroad track switch, or the like, comprising a top plate having depending side walls shorter than the plate and provided with outwardly extending flanges, a bottom plate having flanges corresponding with the flanges in the upper plates, and end members having flanges overlying the edges of the top and bottom plates at the ends thereof for preventing the plates from separating.

17. A housing for the actuating device for an electric toy railroad track switch, or the like, comprising a top plate having depending side walls shorter than the plate and provided with outwardly extending flanges, a bottom plate having flanges corresponding with the flanges in the upper plates, and end members having flanges overlying the edges of the top and bottom plates at the ends thereof for preventing the plates from separating, the end members also having prongs to engage inside the depending side walls of the other plate.

18. An actuating device for track switches for toy electric railroads, comprising an upper and lower plate, a member reciprocably carried underneath the upper plate, a pair of magnet coils fixedly supported from the upper plate and placed underneath the reciprocatory member, a plunger extending outwardly from the coils and connected with the reciprocable member, and a switch tongue operated device connected to the reciprocable member to be moved back and forth simultaneously therewith.

19. In a combined switch and signal for toy electric railroads, a track switch having a movable switch tongue, a signal having a lamp, a pinion for actuating the signal, a reciprocable bar having a rack at one end cooperating with the pinion and connected at the other end to the switch tongue, magnet coils and a reciprocable plunger carried in the coils connected to the bar to actuate it back and forth and thereby simultaneously set the signal and switch.

20. In a toy railroad signal tower, a stamping having a supporting base or foot, a vertical portion, an upper horizontal portion, upwardly projecting arms from the horizontal portion, a lamp socket shell between the arms and attached to the horizontal portion by a hollow rivet, a signal cage fastened to the arms, a support for the stamping, and means to turn the stamping and parts carried thereby about a vertical axis.

21. In a toy electric railroad, a toy track section having a main track and a branch track, switching means carried on the section for guiding a toy train from one to the other of said tracks, said means including a switch tongue, a reciprocatory shift bar, an electro-magnetically operated mechanism fixedly supported on the track adjacent the point where the rails branch, said mechanism actuating said shift bar and a semaphore mounted directly over said mechanism and operated by the shift bar for signaling the setting of the switch.

22. In a toy electric railroad, a toy track section having a main track and a branch track, switch means carried on the section for guiding a toy train from one to the other of said tracks, said means comprising an electrical mechanism for actuating said switch, and a semaphore mounted directly over and operated by said mechanism for signaling the setting of the switch, said semaphore including electric lighting means.

23. In a toy electric railroad, a toy track section having a main track and a branch track, switch means carried on the section for guiding a toy train from one to the other of said tracks, said means including solenoid magnets, an armature plunger mounted within said magnets and a shift bar coupled to said plunger for actuating the switch, and a semaphore mounted over and operated by said magnets to signal the setting of the switch.

24. In a toy electric railroad, a toy track section having a main track and a branch track, switch means carried on the section for guiding a toy train from one to the other of said tracks, said means including solenoid magnets, an armature plunger mounted within said magnets and a shift bar coupled to said plunger for actuating the switch, a revoluble semaphore mounted over and operated by said magnets, and electric lighting means in said semaphore for signaling the setting of the switch.

25. In a toy electric railway, a section of toy railroad track having a track switch, a track switch actuating device comprising a pair of solenoid magnets arranged in tandem in a horizontal plane and supported in said track section, an armature plunger mounted to reciprocate through said magnets, a shift bar actuated by said plunger, rotatable members vertically mounted over the magnets and operated by said shift bar and a semaphore carried by said members for indicating the position of the plunger in the magnets.

26. In a toy electric railway, a section of toy railroad track having a track switch, a track switch actuating device comprising a pair of solenoid magnets arranged in tandem in a horizontal plane and supported in said track section, an armature plunger mounted to reciprocate through said magnets, a shift bar actuated by said plunger, rotatable members vertically mounted over said shift bar and coupled to said shift bar, and an electrically lighted semaphore carried by said members for indicating the relative position of the arm with respect to the magnets.

27. In a toy electric railway, a section of toy railroad track having a track switch, a

track switch actuating device comprising a pair of solenoid magnets arranged in tandem and supported on said track section, an armature plunger mounted to reciprocate through said magnets, a shift bar actuated by said plunger, and a semaphore rotatably mounted over said magnets for operation by said bar.

28. In a toy electric railway, a section of toy railroad track having a track switch, a track switch actuating device comprising a pair of solenoid magnets arranged in tandem and supported on said track section, an armature plunger mounted to reciprocate through said magnets, a shift bar actuated by said plunger, a semaphore rotatably mounted over said magnets, and a rack and pinion driving connection for operating said semaphore by said bar.

29. In a toy electric railroad having a section of toy railroad track having a main track and a branch track, switch means for guiding a toy train from one to the other of said tracks, said means including a casing, an electrically operated switch actuating device in said casing, and an electrically lighted semaphore mounted on said casing and operated by said device.

30. In a toy electric railroad having a section of toy railroad track having a main track and a branch track, switch means for guiding a toy train from one to the other of said tracks, said means including a casing, an electrically operated switch actuating device in said casing, a tower mounted on said casing and a revoluble semaphore supported on said tower and operated by said device.

31. A device of the class described comprising a movable signal, a track switch having a movable switch point, common electromagnetic operating means, a lost motion connection between said operating means and switch point, and a lost motion connection between said operating means and signal.

32. In a device of the class described a base, opposed solenoid coils on said base, a solenoid core extending between said coils, a casing enclosing said coils, a signal rotatably mounted on said casing above said core, an operating connection between said core and signal, fixed and movable switch rails mounted on said base and an operating connection between said core and movable rails.

33. In a railway switch, the combination of a main track and a branch track and a switch member therefor, a switch stand arranged at one side of said main track, a pair of oppositely wound solenoids in said switch stand, a common armature movable in the solenoids, means connecting the armature with the switch member, a shaft mounted in said switch stand, a target on said shaft, a gear on said shaft, a bar having a rack thereon meshed with the gear on said shaft, and means connecting the bar to the armature whereby when either of said solenoids is energized to move said armature said bar will be so moved that the rack thereon will move said gear to alter the position of said target.

34. In a toy railway track switch, a base, stationary and movable rails mounted on said base, an operating bar mounted beneath said base and connected to said movable rails, a spring pressed latch carried by said base and adapted to engage and hold said bar against movement, a common operating means for said latch and bar, carried by said base, and an operating connection between said last named means and said latch, said operating connection being located beneath said base.

35. A toy railway switch having a switch member adapted to be moved to either of two operative positions, a slidable reciprocating bar for moving said member, said bar having two spaced notches, a locking device cooperative with the notches in the bar for holding the bar in either of its extreme positions, a slidable member for releasing said locking device, and reciprocating operating means movable in either of two directions first to slide said last named member to release said locking means and subsequently to move said bar.

36. A toy railway switch having a switch member adapted to be moved to either of two operative positions, a bar slidable in the direction of its length for moving said member, said bar having two spaced notches, a locking device cooperative with the notches in the bar for holding the bar in either of its extreme positions, a second member slidable in the same said direction for releasing said locking device and operating means movable in either of two directions, first to slide said second member and release said locking device, and, subsequently to move said bar.

37. In a toy railway switch, a base, a switch member on said base, a slidable reciprocating bar carried on the upper side of said base, a spring pressed locking pawl for said bar, a slidable bar carried on the under side of said base for releasing said pawl, operating means carried on said base and extending therethrough, and operable first to slide said last named bar to release said pawl and subsequently to move said first named bar.

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