I. V. GOODMAN.

TOY SWITCH.

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1,355,467.

Patented Oct. 12, 1920.

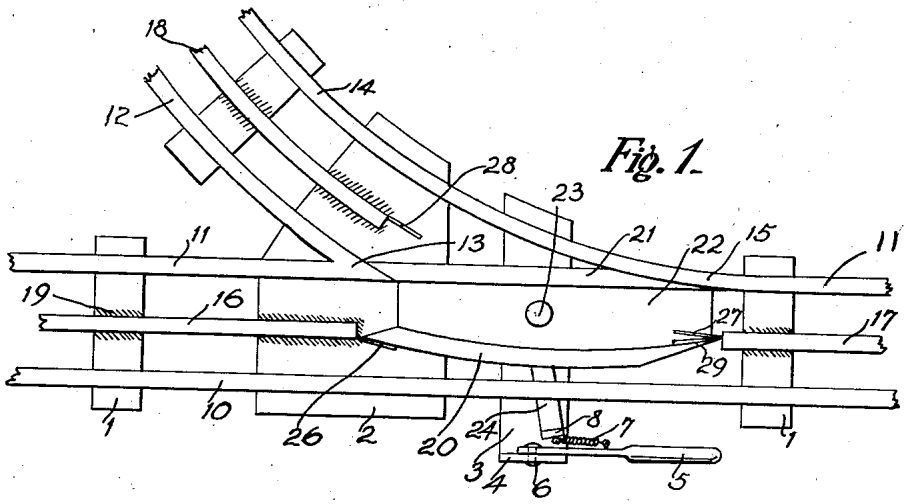

Fig. 1.

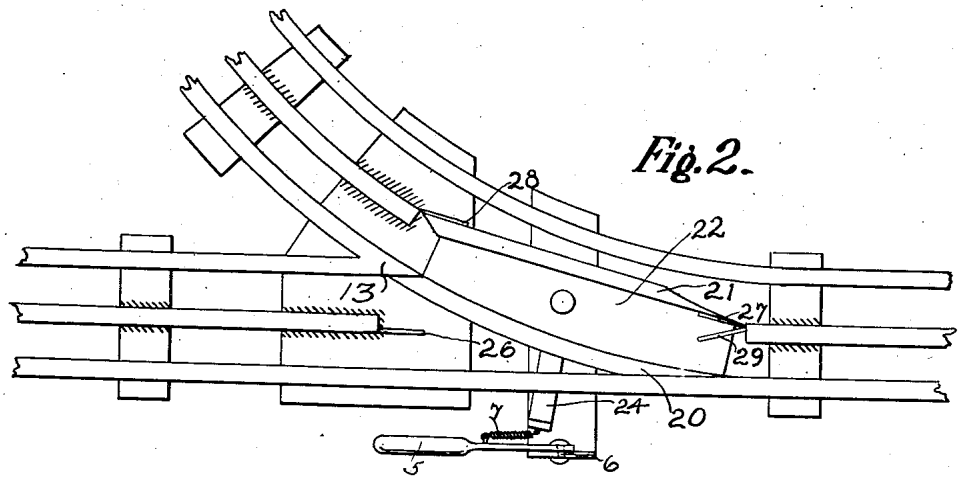

Fig. 2.

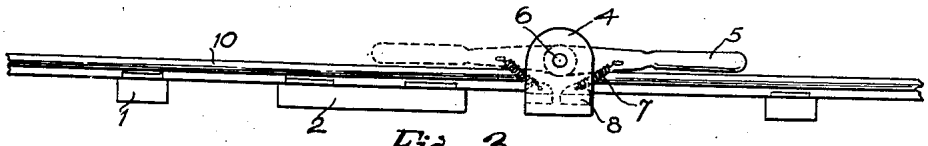

Fig. 3.

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TOY SWITCH.

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To all whom it may concern:

Be it known that I, IRA V. GOODMAN, a citizen of the United States, residing at Altoona, in the county of Blair, State of Pennsylvania, have invented certain new and useful Improvements in Toy Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to railways, and more especially to switches; and the object of the same is to produce a switch particularly applicable to toy outfits operating on the third rail electric principle.

The well known objection to these switches is that the movable element or switch point often jars out of position during the passage of the train, with the result that the train is derailed and the circuit is broken or both.

The object of the present invention is to avoid these objections and at the same time to simplify and therefore to cheapen the construction.

Details are set forth below and shown in the drawings wherein:

Figure 1 is a plan view of this switch with the points set to make the main line continuous, and Fig. 2 is a plan view of most of what is shown in Fig. 1, with the point thrown to its opposite extreme position.

Fig. 3 is a side elevation showing the switch lever in full lines in the position of Fig. 1, and in dotted lines in the position of Fig. 2.

The numerals 1 designate the ties, 2 a larger tie where the side track meets the main track, and 3 a longer tie upturned at its outer end at 4 and having the switch lever 5 pivoted to said end at 6 and also carrying a spring 7 connected with a lower point 8 on the movable element, so that the contraction of the spring holds the lever in either extreme position as shown in Fig. 3.

The main line or straight track is composed of an outer continuous rail 10 and an inner rail 11 which is broken for the entry of the side track. One rail 12 of the latter joins the inner rail 11 in a point 13, and the other rail 14 merges into the inner rail 11 at the point 15. The third rail or "trolley" as it will be called herein for purpose of distinguishing it from the other rails, consists of a section 16 extending along the main line and broken at the switch, beyond which it continues as at 17, and a section 18 extending along the side track, all of said sections being insulated from the ties as indicated by the shading at 19. As customary the trolley is connected with one side of the battery or source of power and all rails and ties (which usually are of metal) are connected with the other side of the battery.

The movable element or switch point comprises rails 20 and 21 mounted on a base 22 of insulating material such as fiber, and this base is pivoted at 23 at a proper point on the long tie 3. The ends of the rails 20 and 21 are properly beveled off as shown, the left ends in the drawings adapted to make contact with either side of the point 13, and the right ends with the inner faces of the main line rails 10 and 11. The trolley rail section 16 is provided with a spring tongue 26, section 18 has a similar tongue 28, and section 17 has tongues 27 and 29. An arm 24 projects from the base 22 under or through the main line rail 10 and is upturned and connected at the point 8 with the spring 7 described above.

When the lever 5 is thrown as seen in Fig. 1, the main track is continuous, the rail 21 standing in line with the sections of the inner rail 11, and the rail 20 bridging the gap in the trolley, one end resting against the tongue 26 and the other end against the tongue 29 and these ends are held there by tension on the spring 7.

When the lever 5 is thrown to the opposite position as seen in Fig. 2 and in dotted lines in Fig. 3, the switch point is turned so that one end of the rail 21 rests against the tongue 28 and the other against the tongue 27 where they are held by the spring, the rail 21 bridges the gap between the trolley sections 18 and 17, and the rail 20 connects the side track rail 12 with the continuous main line rail 10. It is true that in one case a slightly curved rail section 20 forms part of the trolley which is otherwise straight, and in the other case a straight rail section 21 forms part of the trolley section 18 which should curve into the section 17; but the collector or brush on the motor car of the train will be sufficiently wide to travel over this slightly irregular trolley or third rail. The essential feature is that the contraction of the spring 7 holds the switch

point in either extreme position so as to prevent the jar of the train from dislodging the point or interrupting the circuit which in its position it closes. It is quite possible that other forms of switch operating mechanism may be employed, but I have shown and described this as perhaps the simplest form consistent with the structure of the remainder of the device.

What is claimed is:

1. In a switch, the combination with the main line and switch line rails, a long tie underlying their point of union and having an upturned outer end, and a switch point pivoted on said tie and having an arm extending along such tie; of a lever pivoted to said upturned end, and a contractile spring connecting the lever with the outer end of the arm at a point below the line of the pivot, for the purpose described.

2. In a switch for a third rail system, the combination with the main line and switch line rails, a long tie underlying their point of union, the third rails interrupted at such point, and spring tongues at the extremities of said third rails; of a switch point comprising two rails mounted on an insulated base, a pivotal support for the base at said point of union, means for turning the base on its pivot so that one of its rails complements the track rail and the other complements the third rail and contacts at its extremities with the tongues thereof, and means for turning said base to the opposite position when desired.

3. In a switch for a third rail system, the combination with the main line and switch line rails, a long tie underlying their point of union, the third rails interrupted at such point, and spring tongues at the extremities of said third rails; of a switch point comprising two rails mounted on an insulated base, a pivotal support for the base at said point of union, an arm projecting transversely from said base, a switch lever movably mounted, and a spring connecting said arm and lever whereby in either position of the latter the arm and base will be turned on their pivot to cause one rail to complement a line rail and the other to complement the third rail, said spring holding its extremities in contact with two of said tongues.

4. In a switch for a third rail system, the combination with the main line and the switch line rails uniting therewith, the third rails interrupted at such point, and spring tongues at the extremities of said third rails; of a switch point comprising two insulated rails pivotally mounted at said point of union, means for turning said point so that one of its rails complements the track rail and the other complements the third rail and contacts at its extremities with the tongues thereof, and means for turning said point to the opposite position when desired.

In testimony whereof, I affix my signature, in the presence of two witnesses.

IRA V. GOODMAN.

Witnesses:

HOMER C. MINSTER,
JAMES L. POLK, Jr.