

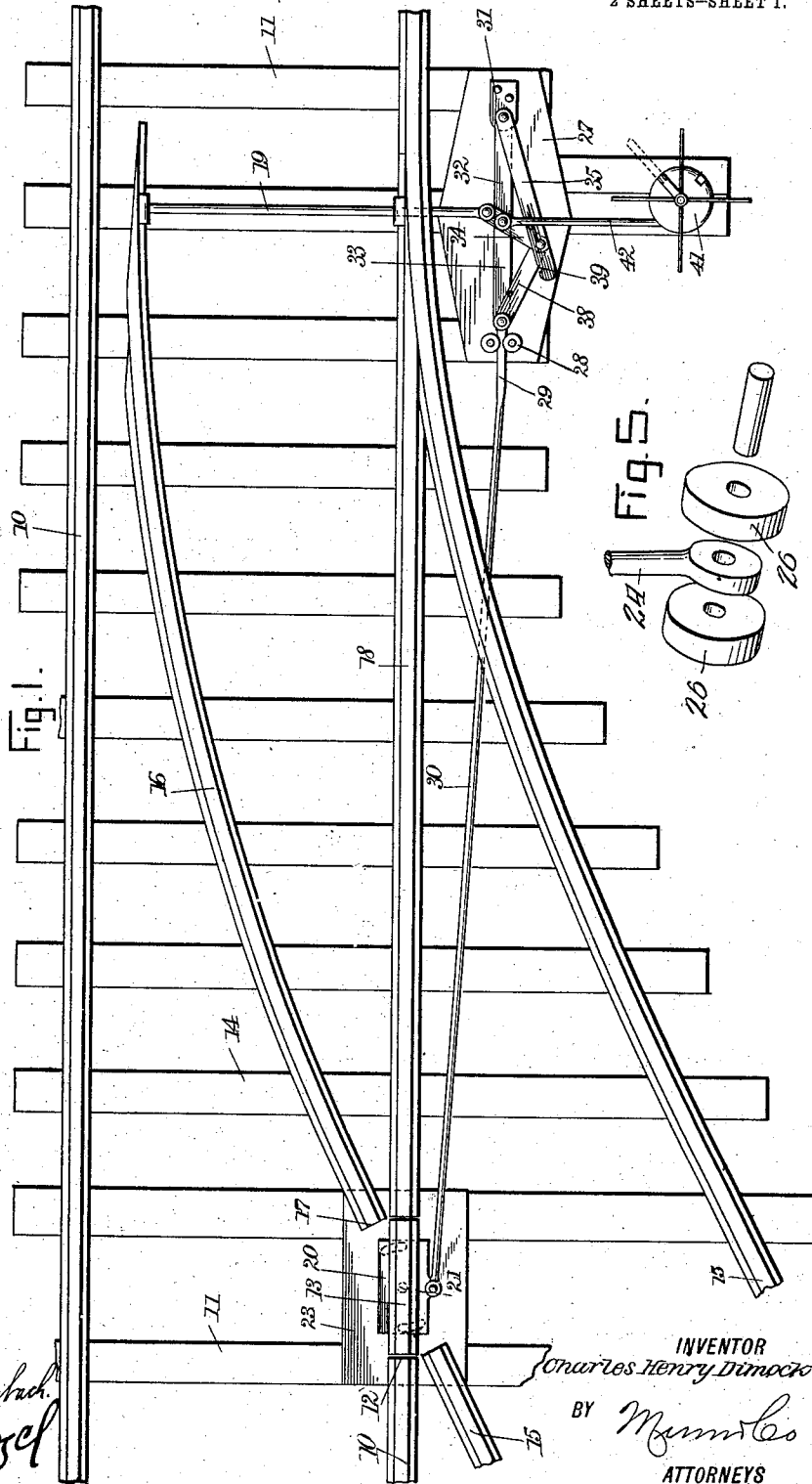
C. H. DIMOCK.
SWITCH.

APPLICATION FILED MAY 23, 1911.

Patented Mar. 26, 1912.

2 SHEETS-SHEET 1.

1,021,665.



WITNESSES
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INVENTOR
Charles Henry Dimock
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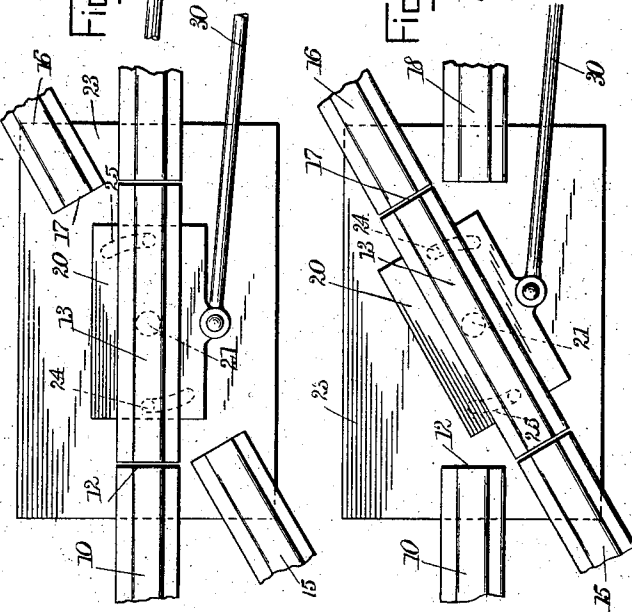
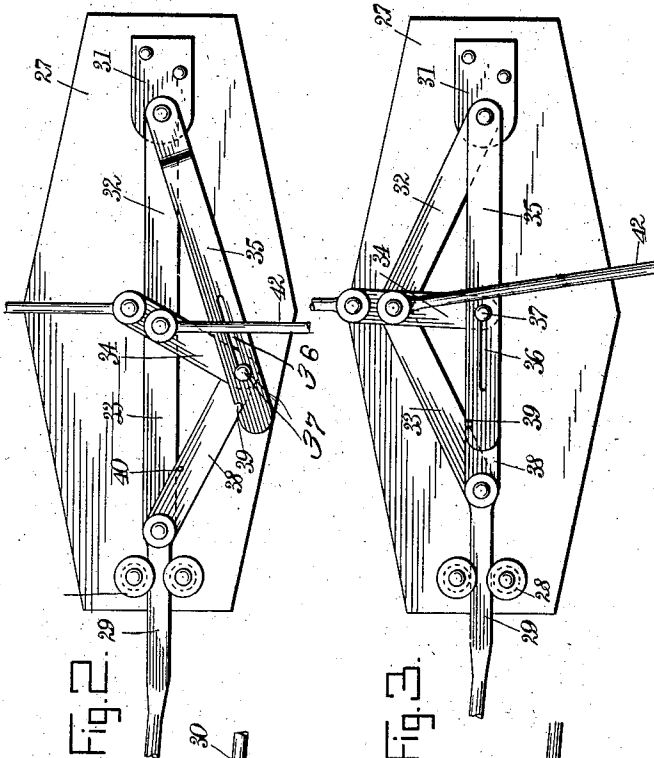
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UNITED STATES PATENT OFFICE.

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SWITCH.

1,021,665.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed May 23, 1911. Serial No. 629,051.

To all whom it may concern:

Be it known that I, CHARLES HENRY DIMOCK, a subject of the British Crown, and a resident of Windsor, in the Province of Nova Scotia and Dominion of Canada, have invented a new and Improved Switch, of which the following is a full, clear, and exact description.

This invention relates to switches for use with railroad tracks and for other like purposes, and has reference more particularly to the combination in a switch of a main track, a branch track, a movable switch point, a movable frog adapted to render continuous said main track and said branch track, and an operative connection between said point and said frog, said connection being adapted to be controlled from a switch stand or the like.

The object of the invention is to provide a simple and efficient switch which can be used with railroad and other tracks, in which the rail sections at the switch are continuous when the switch is open or closed, in which is to a large extent obviated the noise and wear incident to the travel of rolling stock over the ordinary switch, which is little affected by ice, snow or sleet, which is simple and positive in operation, and in which the rail sections are capable of extended and hard usage.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a plan view of a railroad track switch constituting an embodiment of my invention; Fig. 2 is an enlarged plan view of certain of the operating elements of the switch, parts being broken away; Fig. 3 is a view similar to Fig. 2, certain of the parts being shown in different positions; Fig. 4 is a fragmentary, longitudinal section showing in side elevation, the elements illustrated in Figs. 2 and 3; and Fig. 5 is a perspective view showing certain details of construction.

Before proceeding to a more detailed explanation of my invention, it should be clearly understood, that while the switch is particularly useful in connection with ordinary railroad tracks, it can also be advan-

tageously employed for other, similar purposes. In the usual type of switch, the vibration and pounding incident to the passage of the rolling stock along the switch points and over the switch frogs subjects the rail sections to excessive wear, owing to the fact that in the different positions of the parts the respective rails are not continuous. As a rule, the main track rails are substantially continuous, and the crossing from the main track rail to the branch track rails is effected by means of a frog. I employ a movable frog, specifically, a swinging frog, which in combination with the usual movable switch points, renders both the main track rails and the branch track rails continuous, when the switch is closed or open. Consequently, the noise and wear incident to the passage of the rolling stock over the switch, and along the main track rails, or from the latter to the branch track rails, and vice versa, are reduced to a minimum.

Certain of the details of construction, shown for example, herewith, form no part of the invention, and can be varied in accordance with individual preference and special conditions, without deviating from the essence of the invention as defined in the appended claims.

Referring more particularly to the drawings, I have shown for example, sections of the main track rails 10, secured in the usual manner, upon cross ties 11 of any suitable form. One of the main track rails 10 is provided with a gap 12, in which is located movably, a frog 13 which will be described more particularly hereinafter. Certain of the ties 14 are of greater length, and support the branch track rails 15, which are angularly disposed relatively to the main track rails, in the usual manner. Located between the main track rails and terminating at one end, adjacent to the gap 12, is a movable switch point 16 having the free end tapered so that it can be arranged in juxtaposition to the outer main track rail 10. Between the inner end of the switch point 16 and the extremity of the one branch track rail 15, is formed a gap 17 which is coincident with the gap 12, and which therefore also has the frog 13 located therein. The frog, it will be understood, is thus adapted to render continuous either the inner rail 10, or the one branch track rail, that is, the branch track rail 15, and the switch point 16.

The inner main track rail 10 includes a

switch point section 18, one end of which forms a corresponding end of the gap 12. The switch point section 18 has the other end tapered, so that it can be arranged in juxtaposition with the one branch track rail 15, which merges into the inner main track rail 10, in the usual manner, as will be clearly seen from an inspection of Fig. 1. The switch point 16 and the switch point section 18 are operatively connected by means of a cross bar 19, which is materially extended at one end, beyond the switch point section 18, and which rigidly joins the parts and spaces them so that when the section 18 is in juxtaposition with the corresponding main track rail 10, the point 16 is spaced from the other main track rail, and vice versa.

The movable frog 13 is a short rail section of the usual form, which is carried upon a sole plate 20. The latter has, near the middle, a projection 21, by means of which it is journaled in a correspondingly formed opening 22 of the base plate 23, secured upon two of the cross ties. The frog has studs 24 which extend through the sole plate 20 and are received in arc-shaped slots 25 of the base plate, so that the frog and the sole plate have a limited freedom of movement, and can be swung in one direction or the other, through predetermined arcs about the fulcrum projection 21. At the lower end, underneath the base plate, each of the studs 24 carries a pair of suitably formed rollers 26, which engage at the under side of the base plate, and hold the frog against a rocking movement, though permitting it to be turned freely in a horizontal plane.

Adjacent to the end of the switch point section 18, and at the outside of the main track is located a supporting plate 27, secured upon certain of the cross ties. At one end, a pair of spaced, grooved guide rollers 28 is journaled upon the plate 27. The squared end 29 of a rod 30 is movable between the rollers. At the other end, the rod 30 is pivotally joined to the sole plate 20, which has a suitable, laterally extended ear for this purpose. At the end of the plate 27 remote from the guide rollers 28 is secured by means of bolts, or in any other suitable manner, a bracket plate 31. An arm 32 is pivotally mounted upon the bracket plate 31, and has pivotally connected therewith at the free end a second arm 33, which is in turn pivotally connected at the end of the rod 30. A thrust bar 34 is pivotally connected intermediate its ends, at the pivotal junction of the arms 32 and 33, and is also pivotally joined at its extremity with the end of the cross bar 19. A lever 35 is mounted to swing at one end upon the bracket plate 31, and has near the other end a slot 36, which movably receives a pivot pin 37

carried at the end of the thrust bar 34 remote from the cross bar 19. A second lever 38 is pivotally joined at one end with the extremity of the rod 30, and at the other end with the pivot pin 37. The end of the lever 35 extends beyond the corresponding extremity of the slot 36 and is provided at one side with a notch 39 adapted to engage, as will appear hereinafter, a projection 40, located intermediate the extremities of the lever 38.

The switch may be operated in any suitable manner, though I prefer to control it from a convenient switch stand 41. I have not illustrated in detail the stand, as the same forms no part of my invention. It is operatively connected by means of a rod 42, with the thrust bar 34 at the junction of the latter with the arms 32 and 33. The arrangement of the parts is such that when the switch point section 18 is in position to render continuous the one main track rail, the frog is so arranged that it closes the gap 12, and also renders continuous the corresponding main track rail. At the same time, the switch point 16 is inoperatively disposed. Under these conditions, the switch is closed and the main track is unobstructed. When it is desired to open the switch, the switch stand is operated to move the rod 42 in the direction of its length. This actuates the thrust bar 34 so that the latter moves the cross bar 19 in the direction of its length, and thereby displaces the main switch point 18 from its operative position, and brings the switch point 16 into juxtaposition with the outer main track rail 10. At the same time, the movement of the thrust bar shortens the toggle joint formed by the arms 32 and 33, and moves the rod 30 in the direction of its length, to swing the frog 13 into position such that it closes the gap 17 and renders continuous the one branch track rail 15 and the switch point 16. The slot 36 allows sufficient play of the parts to effect the movement described above, the lever 35 being alined with the square end 29 of the rod 30 when the switch is open. Under these conditions, the notch 39 is brought into engagement with the projection 40, to limit the movement of the lever 35, and also to lock the parts against further movement in one direction.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent:—

1. In a switch, in combination, a main track, a branch track, a movable switch point, a movable frog adapted to render continuous either said main track or said branch track, an operative connection between said point and said frog, a support for said frog, and rollers associated with said frog and engaging said support.

2. In a switch, in combination, main track

rails, one of said rails having a gap and a movable switch point section terminating at said gap, a branch track rail terminating at said gap, a second branch track rail merging into said main track rail having said gap, a movable switch point located between said main track rails and terminating at said gap, a movable frog located in said gap and adapted to render continuous said switch point and said first branch track rail, or said main track rail having said switch point section, a support under said frog, rollers associated with said frog and engaging said support, and an operative connection between said switch point and said switch point section and said frog.

3. In a switch, a rail having a gap, a base plate positioned under said gap, a frog movably mounted upon said base plate, and rollers secured to said frog and engaging under said plate.

4. In a switch, a rail having a gap, a base plate positioned under said gap, a sole plate movably mounted upon said base plate, a frog supported by said sole plate, and a roller carried by said frog and engaging under said base plate.

5. In a switch, rails having coincident gaps, a base plate positioned under said gaps and having an opening, a sole plate movably mounted upon said base plate and having a projection movable in said opening, a frog mounted upon said sole plate, said base plate having arc-shaped slots, studs extending from said sole plate through said slots, and rollers carried by said studs and engaging at the under side of said base plate.

6. In a switch, in combination, rails having coincident gaps, a frog mounted to swing in said gaps, movable switch points, a cross bar rigidly connecting said points, a rod pivotally connected with said frog, a pair of pivotally connected arms, one of said arms having a fixed fulcrum, the other of said arms being pivotally connected with said rod, a thrust bar pivotally joined with said arms at the connection between the same, said thrust bar being pivotally connected with said cross bar, and means for operating said cross bar.

7. In a switch, in combination, rails having coincident gaps, a frog mounted to swing in said gaps, movable switch points, a cross bar rigidly connecting said points, a rod pivotally connected with said frog, a pair of pivotally connected arms, one of said arms having a fixed fulcrum, the other of said arms being pivotally connected with said rod, a thrust bar pivotally joined with

said arms at the connection between the same, said thrust bar being pivotally connected with said cross bar, means for operating said thrust bar, a lever having a fixed fulcrum, and a second lever pivotally connected with said thrust bar, said first lever having a slotted, pivotal connection with said second lever and said thrust bar, at the junction of the same.

8. In a switch, in combination, a rail having a gap, a frog mounted to swing in said gap, a switch point, a thrust bar constituting a switch-operating member, a toggle consisting of two pivotally connected arms, one of said arms having a fixed fulcrum, the other of said arms being operatively connected with said frog, said toggle being connected with said thrust bar, and means connected with the toggle and said thrust bar, for limiting the movement of the parts.

9. In a switch, in combination, a rail having a gap, a frog mounted to swing in said gap, a switch point, a thrust bar constituting a switch-operating member, a toggle consisting of two pivotally connected arms, one of said arms having a fixed fulcrum, the other of said arms being operatively connected with said frog, said toggle being connected with said thrust bar, and levers connected with the toggle and said thrust bar, for limiting the movement of the parts, said first lever having a notch, said second lever having a stud adapted to be received in said notch when said levers are aligned, whereby the movement of said levers beyond positions such that they are in alinement, is prevented.

10. In a switch, in combination, a main track rail having a gap, a branch track rail terminating at said gap, a movable switch point terminating at said gap, a movable frog located in said gap, a rod connected with said frog and movable in the direction of its length to swing said frog, a pair of pivotally connected arms, one of said arms being connected with said frog, the other of said arms having a fixed fulcrum, a thrust bar pivotally connected with said points and with said arms at the connection thereof, and a pair of levers pivotally connected with said thrust bar and said rod, and with each other.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES HENRY DIMOCK.

Witnesses:

EDMUND H. DIMOCK,
RAYMOND P. DIMOCK.