

A. A. SCHUMACHER.
RAILWAY SWITCH.
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938,610.

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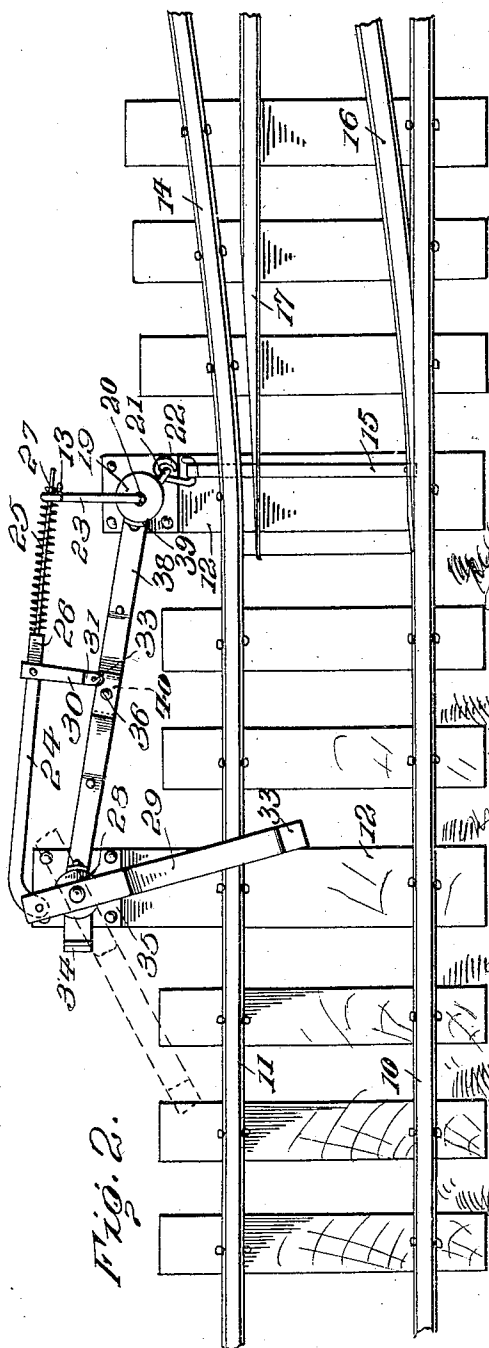


Fig. 2.

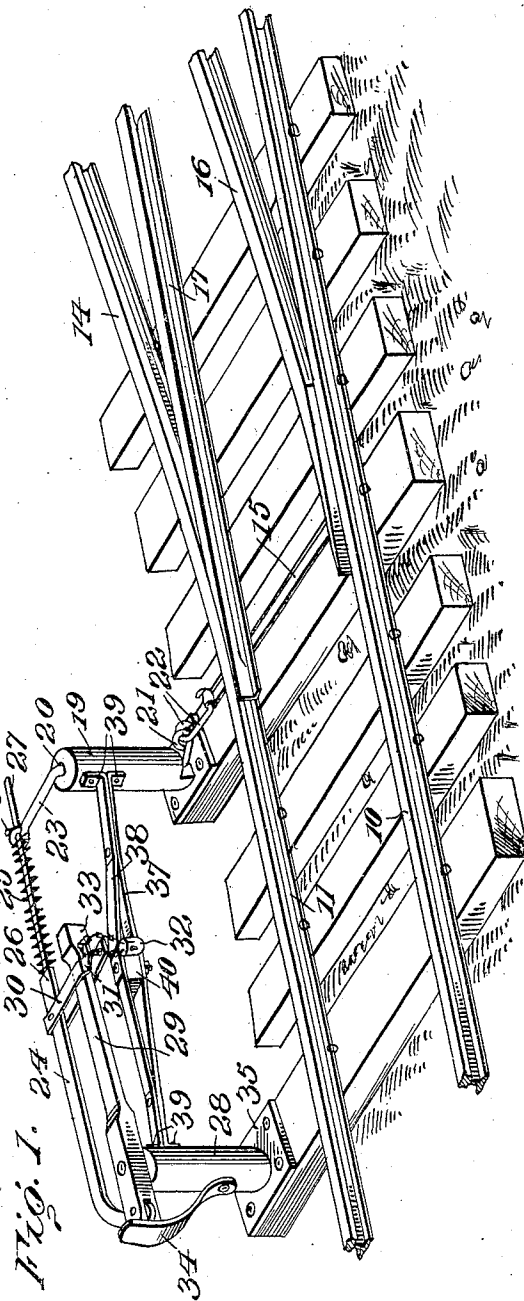


Fig. 1.

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ALBERT A. SCHUMACHER, OF LISBON, NORTH DAKOTA.

RAILWAY-SWITCH.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT A. SCHUMACHER, citizen of the United States, residing at Lisbon, in the county of Ransom and State of North Dakota, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification.

This invention relates to railways and refers particularly to an improved switch employed in connection with the same.

The invention has for an object the provision of an improved switch which automatically closes upon the passage of a train thereover, unless purposely held open by the hand of an operator when the train is running at a slow speed to place the car on a siding so as to prevent accident to the train by reason of the train unexpectedly running upon the siding.

The invention further contemplates the provision of a switch mechanism which will normally be in a position to direct trains from the siding and which necessitates the manual setting and holding of the same to direct the train upon the siding.

A still further object of this invention is the provision of a switch mechanism which is locked in a closed position and is so formed that when the lock is tampered with or removed the switch mechanism is in such position as to be automatically operated to close upon the passing of a train.

For a full understanding of the invention and the merits thereof, as well as to acquire a knowledge of the details of construction and the means for effecting the result reference is to be had to the following description and accompanying drawings in which;

Figure 1 is a perspective view of the improved switch mechanism in a closed and locked position, the same being applied to a track and a siding, and Fig. 2 is a top plan view of the same disclosing the mechanism in a semi-open position, the lock being removed, the operating lever being disclosed in a full open position in dotted lines.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring more specifically to the drawings in which is illustrated an embodiment of the invention, the numerals 10 and 11 designate the rails of a section of the main track provided with the switch points 16

and 17 which lead to a siding 14. The points 16 and 17 are attached to a draw bar 15 which extends transversely beneath the rails 10 and 11 and projects at one side of the main track.

The mechanism employed for throwing the points 16 and 17 includes a shaft 20 which is vertically journaled through a switch stand 19 and which is formed at its lower end with an arm 21 which is inwardly and laterally extended from the stand 19 for engagement with the outer ends of the draw bar 15 through the employment of the link 22. The upper end of the shaft 20 carries an arm 23 which is extended outwardly and provided with a loop or eye 13 at its outer extremity for the reception of the rounded extremity of a reach rod 24 slidably disposed therethrough. The reach rod 24 is provided with a shoulder 26 formed immediately thereon against which a coil spring 25 is engaged, the spring 25 being disposed about the rounded portion of a reach rod 24 and engaged at its outer end against the loop 13 to resiliently hold the arm 23 against the end of the rod 24. A pin 27 is secured through the extremity of the reach rod 24 for the purpose of retaining the loop 13 thereon. The stand 19 is mounted at one side of the main track adjacent the outer extremity of the draw bar 15 and is disclosed in the drawings as being secured to one of the ties 12 although any other suitable mounting may be employed.

Spaced at a distance from the stand 19 and preferably mounted upon the extension of one of the ties 12 is a post 28 which is extended vertically from a suitably formed base plate 35 secured to the tie 12 in any suitable manner. An operating lever 29 is pivotally mounted upon the upper end of the post 28 at an intermediate point on the lever, the inner end of the lever 29 being pivotally connected to the outer extremity of the reach rod 24. The outer end of the reach rod 24 is flattened and curved inwardly so as to engage about the upper end of the post 28 and the lever 29 when the operating lever 29 is swung inwardly against the reach rod 24.

Intermediately disposed upon the reach rod 24 is a pair of spring arms 30 which are provided with shoulders 31 for engagement against the outer edge of the lever 29 when the same is thrown inwardly in order to retain the lever 29 in a locked position. The

spring arms 30 are flared outwardly at their outer ends to form lips 36 for engaging against the opposite faces of the operating lever 29 to separate the springs 30 and to thereby permit the lever 29 to engage with the shoulders 31. The lips 36 are apertured for the reception of a suitable padlock 32 as is disclosed in Fig. 1 of the drawings. For the purpose of adding momentum to the operating lever 29 when thrown inwardly the same is provided with a weight 33 on its outer end which is preferably integrally formed therewith by enlarging the end of the lever 29.

In order to frictionally retain the operating lever 29 in a closed position, a leaf spring 34 is mounted upon one side of the post 28 and is extended upwardly from an intermediate point of the post 28, the springs 34 being curved outwardly from the post at its upper end to engage against the inner end of the operating lever 29 and to thereby hold it under the tension of the spring. The spring 34 also serves the function of a stop for limiting the outward movement of the lever 29 to prevent passing of the point of pivotal contact between the lever 29 and the reach rod 24 beyond the pivotal point of the lever 29 to the post 28.

In order to insure the rigidity of the stand 19 and the post 28 and to prevent the same from spreading and contracting, a brace is employed which is composed of a pair of companion straps 37 and 38 flanged oppositely at their ends as at 39, which flanges 39 are secured to the stand 19 and post 28 adjacent one another. The straps 37 and 38 are diverged intermediately and provided with a block 40 for strengthening the same, the block being engaged between the straps 37 and 38 and secured in such position by a rivet or the like.

Normally the switch is retained in a closed position by securing the operating lever 29 between the spring arms 30 and against the shoulders 31. When it is desired to open the siding the spring arms 30 are disengaged and the operating lever 29 is drawn outwardly forcing the reach rod 24 backwardly through the eye 13 against the tension of the spring 25, the strength of the spring 25 being sufficient however, to swing the arm 23 and to cause the rotation of the shaft 20. This motion is communicated to the draw bar 15 through the arm 21 and the link 22 whereby the switch points 16 and 17 are thrown into an open position to permit a train to move from the main track onto the siding. In order to effect this result it is necessary to swing the lever 29 entirely around to strike against the leaf spring 34 thereby properly seating the point 16 against the main rail 10 and distancing the point 17 sufficiently clear of the opposite main rail 11.

The point 28 is so located from the main

track that it is necessary to swing the lever 29 against the spring 34 otherwise the lever will be in a position to be struck by the passing train and the switch will be automatically closed. From the disclosure in the drawings it will be observed that the spring 25 will not permit the lever 29 to rest against the spring 34 but will immediately upon the release of the lever 29 from the hand of the operator, swing the lever a distance inwardly in the path of the main track thereby automatically setting the switch mechanism to be operated upon by the next passing train. This feature is an advantage where the switch is left open through carelessness or by accident the locking means fails to retain the lever 29 in a closed position, thus insuring the safe passage of the train over the main track.

Having thus described the invention, what is claimed as new is:—

1. In a switch the combination with a pair of points pivotally disposed on a track, of a draw bar engaged across said points, a switch stand positioned outwardly of said track, a shaft vertically disposed through said stand and connected to said draw bar, an arm outwardly projected from said shaft, a reach rod positioned through the outer end of said arm, a rounded portion disposed on the inner end of said reach rod for engagement through said arm, a spring disposed about said rounded portion for engagement against said arm, a pin engaged through the outer extremity of said rounded portion to retain said arm in position, a post positioned outwardly of the track at a distance from said stand, an operating lever pivotally mounted on said post and connected at its inner end to said reach rod, a pair of spring arms carried by said reach rod intermediately thereof for engagement with said lever and a leaf spring upwardly and outwardly extended from said post for limiting the movement of said operating lever.

2. In a device as specified the combination with a track, and a pair of switch points disposed of said track, of a post positioned outwardly of said track adjacent said points, a lever mounted on said post and connected to said points for throwing the same, and means connected to said mechanism for normally retaining said lever in an inward position over said track for engagement with trains passing thereover.

3. In a device as specified the combination with a track and switch points disposed on said track, of a draw bar connected to said switch points, a switch stand positioned outwardly of the track, a shaft vertically disposed through said stand and connected to said draw bar, an arm outwardly extended from the upper extremity of said shaft, a looped portion formed on the outer end of said arm, a reach rod engaged with said

arm, a rounded portion formed on said reach rod for engagement through said looped portion, shoulders formed intermediately of said rod, a coiled spring engaged about said rounded portion between said shoulder portion and said arm, a pin carried by said rounded portion to prevent the displacement of said arm, a post mounted outwardly from said track adjacent to said standard, a lever mounted upon the upper extremity of said post for horizontal movement about said post and connected to said reach rod, a weight positioned upon the upper extremity of said lever, a pair of spring arms carried intermediately upon said reach rod for engagement about said lever at times, shoulders formed on said spring arms to engage said lever and a leaf spring upwardly diverged from said post to limit the movement of said lever.

4. A switch mechanism including a main track, a siding, points between said track and said siding, a draw bar engaged with said points and extended outwardly of said track, a stand mounted at one side of said track, a shaft carried by said stand, a lower arm on said shaft and connected to said draw bar, an upper arm carried on said shaft and extended outwardly from the same, a reach rod loosely engaged through said upper arm, a spring carried by said rod and engaged with said upper arm to retain the same at the end of said rod, and an operating lever connected to the opposite end of said reach rod for actuating the same.

5. In combination, a track, a siding, switch points disposed between said track and said siding, a stand mounted outwardly of said track, a shaft disposed through said stand and connected to said points, an operating

lever connected to said shaft and means carried by said operating lever to hold the same across said track when said points are left open.

6. In a switch, the combination with a pair of points pivotally disposed on a track, of a draw bar engaged across said points, a switch stand positioned outwardly of said track, a shaft vertically disposed through said stand, and connected to said draw bar, and outwardly projected from said shaft, a reach rod positioned through the outer end of said arm, a spring disposed about said reach rod for engagement against said arm to resiliently connect the same to said rod, a post positioned outwardly of the track at a distance from said stand, an operating arm pivotally mounted on said post and connected to said reach rod, means carried by said rod to hold said lever thereagainst and a spring on said post to limit the outward movement of said lever.

7. In a device as specified the combination with a track and a pair of switch points disposed on said track, of a post positioned outwardly of said track adjacent said points, a stand mounted outwardly of said track adjacent said post, a brace disposed between said stand and said post, a shaft carried by said stand and connected to said points, a lever on said post connected by said shaft and means disposed between said lever and said shaft for retaining said lever across said track upon the release of the same.

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

ALBERT A. SCHUMACHER. [L. s.]

Witnesses:

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