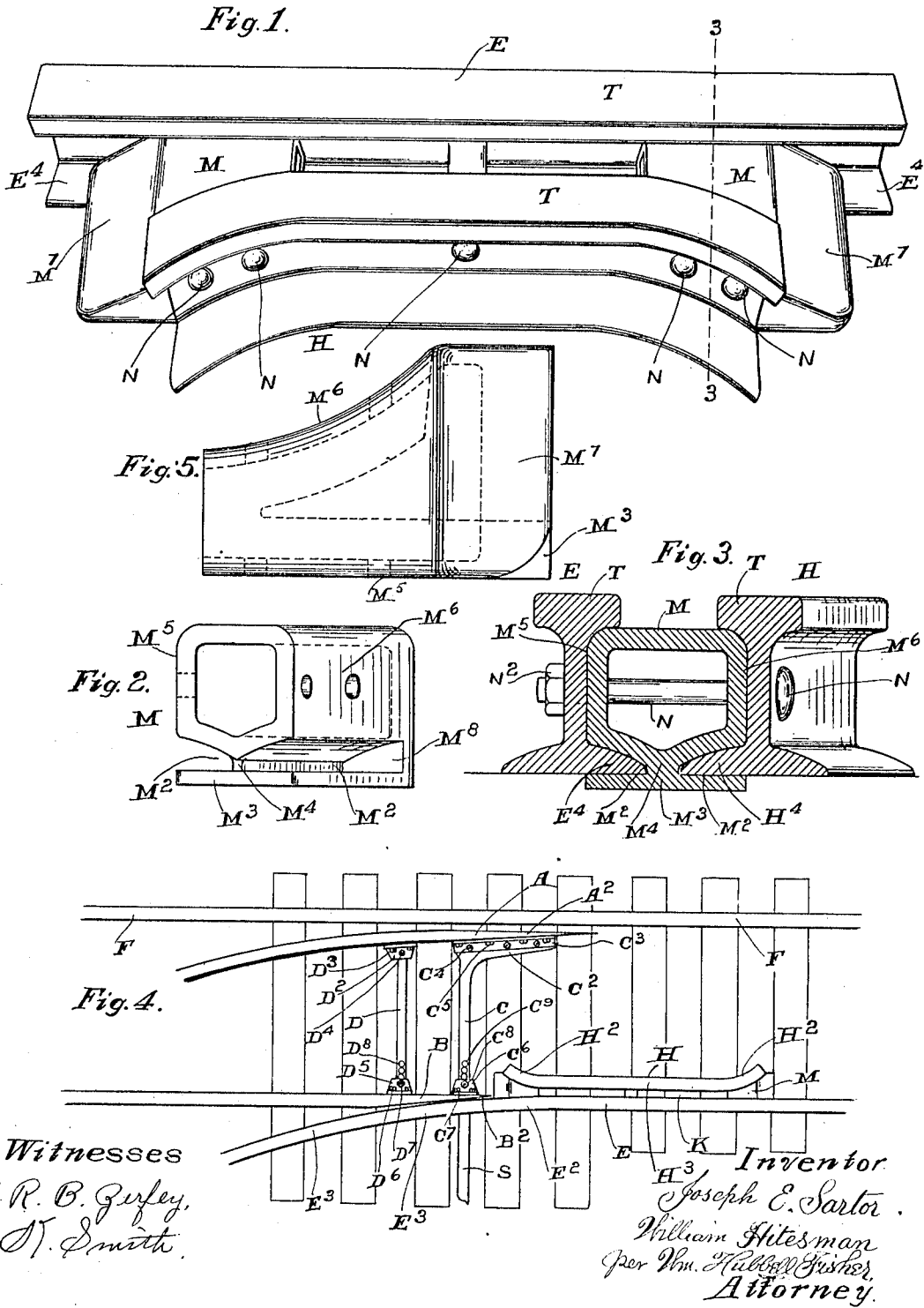


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SWITCH.

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SWITCH.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JOSEPH E. SARTOR and WILLIAM HITESMAN, both citizens of the United States, and residents of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Switches, of which the following is a specification.

Our invention relates more particularly to that class of switches known on the American railways as a split switch.

One feature of our invention has to do with a novel arrangement in position of one of the switch rails of the switch and of a lengthening of the opposite switch rail.

Our invention further relates to an enlargement of a tie bar brace and to a novel and useful construction of the same.

These and other features of our invention will be hereinafter fully set forth.

The several features of our invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawings making a part of this specification, and in which similar characters of reference indicate corresponding parts,—Figure 1 is a view in perspective of a rail and of the guard rail and of our improved safety blocks combined. Fig. 2 is a view in perspective of one of our safety blocks. Fig. 3 is a view, partly in perspective and partly in section, of the combination of a rail, and a guard rail and one of our safety blocks combined, the section being taken in the plane of the dotted line 3, 3, of Fig. 1. Fig. 4 represents a plan of a track and accompaniments, illustrating our improved switch and including our safety blocks in position. Fig. 5 is a top view of either one of the safety blocks.

We will now proceed to describe our invention in detail.

We have invented an improvement in what is technically known as a split switch, now in service on American railways.

One feature of our invention consists in changing the position of one of the switch rails and also by lengthening the said switch rail, according to its position. The preferred increase of length will vary from twelve inches to eighteen inches as the conditions demand. This said switch rail A is located on the opposite side of the track from the shorter switch rail B, and from what is known as the stock rail E. The two

switch rails A and B are connected by tie bars, respectively marked C and D. The tie bar C we provide with an arm C² which extends forward along the rail switch A, and serves to strengthen the tapering terminal portion A² of this switch rail A in an advantageous manner. This arm C² of the tie bar C is connected to the rail, preferably by an angle iron C³, and a series of bolts C⁴ extending through the latter and into the said arm C², and another series of bolts C⁵ extending through the said angle iron and into the said switch rail A. This tie bar C is connected to the short switch rail B, and the preferred means of such connection is an angle iron C⁶, united by bolt C⁷ to the said short switch rail B, and by bolt C⁸ to the tie bar C. Holes C⁹ are preferably present in the tie bar C. By changing the bolt C⁸ from one to another of these holes, the distance between the long switch rail A and the short switch rail can be increased or diminished as may be necessary.

The tie bar D is connected to the long switch rail A, preferably by an angle iron D². A bolt D³ connects the latter to the said long switch rail A. A bolt D⁴ connects the angle iron D² to the tie bar D. This tie bar D is connected to the short switch rail B by an angle iron D⁵. The latter is connected to the said short switch rail by a bolt D⁶, and is connected to the tie bar D by a bolt D⁷. A series of holes D⁸ are preferably present in the tie bar D. By changing the position of the adjacent bolt from one hole to another, distance of the short switch B from the long switch A can be varied. Motion is imparted to the switch preferably by a bar S connected at one end to the tie bar C, and at the other end to a suitable switch lever not herein shown but well understood.

It will be understood that at a proper point at the left of Fig. 4, the long switch rail A is pivoted so as to allow it to move to and from the straight rail F. Also the short switch rail B is pivoted at the left, so as to allow it to move toward and away from the stock rail E. The pivotal connections between the tie bars and these rails to which they are connected allow any necessary pivotal movement of either or both of the said rails relative to the said tie bars. The shorter switch rail B is placed in service in the track opposite the long switch rail A, and when against the stock rail E occupies a position wherein its length is parallel to

the length of that portion E^2 of the stock rail E which is immediately in front of the short switch rail point. These two rails B and E then form part of the main track.

5 The stock rail E has a short or comparatively abrupt bend in it, forming a curve which leads off from the main track and constitutes a part of the turn-out or siding track. The stock rail is placed in service in the track in a position. This bend E^3 of the stock rail begins at a point just opposite the free end B^2 of the short switch rail point. Such bend is to be from twelve to eighteen inches or more, if necessary. The bend E^3

10 in the stock rail E guards and protects the short rail point or tapered terminal portion of the short switch rail B . This protection of the switch rail makes it safe for traffic to pass over the said switch point B^2 when the said switch rail is thrown into proper position and a railroad car to remain on the main track. We preferably provide therefor a guard rail. The preferred construction of this guard rail, which construction is also

15 a feature of our invention, forms in combination with the features of invention already described, a switch of great durability and safety. This guard rail H is five feet in length, or longer, at the option of the builder. It should not be less than five feet in length. This guard rail H is bent at both ends to one and the same side. Thus, as shown in Fig. 4, each end portion H^2 is bent away from the stock rail E . When in proper

20 position, as shown, there is an open space K between the said guard rail H and the main track (stock) rail E . At the ends of said guard rail H , as we construct it and locate it, the space between each of the said terminal points of the ends H^2 , H^2 , and the stock rail E is five inches wide, tapering to a space one and three fourth inches wide where the bend H^2 ends in the straight portion H^3 of this guard rail H . Obviously the space K

25 between the straight main portion H^3 of this guard rail and the main track is one and three quarter inches. The said guard rail H is placed in service in the track alongside of the stock rail E , and its main portion H^3

30 parallel to the stock rail E , and a part of it is opposite the said long switch terminal portion A^2 . This said guard rail H is for the purpose of protecting, and it does protect the long switch rail point A^2 . This protection makes it safe for railroad cars, passenger and freight cars, loaded or otherwise, to safely pass over this long switch rail point A^2 , when the switch is in proper position for the turn-out or siding, consisting of the part

35 A , A^2 , then close against the main rail F and the track rail E (E^2 and E^3), the short switch rail point B^2 being at a distance from the rail E . This guard rail H is reinforced by two safety blocks, respectively marked M .

40 The latter are of a wedge shape, and we add

these to the solid guard rail. These safety blocks M , M are placed in service. One of these blocks M is located in the space at one end portion of the guard rail between the said guard rail and the main track (stock) rail E . The other of these blocks M is located in the space at the other end of the guard rail and between the said guard rail and the said main track E .

For the sake of economy and lightness, each safety block M can be cast hollow. Each block M is provided at each side near the base with a recess M^2 . Each recess M^2 is adapted to receive the adjacent edge of the foot of the adjacent rail. Thus the foot

75 piece H^4 of the rail H enters one of these recesses M^2 of the safety block M and the foot piece E^4 enters the other one of these recesses M^2 of the safety block M . The recesses M^2 are shaped so as to well fit those adjoining foot portions of the rails which enter therein. The safety block therefore has a broad base M^3 connected to the upper portion of the block by a neck M^4 . That side

80 M^5 of the block M which is next to the main rail E is straight, while that side M^6 which is next to the guard rail H is inclined and preferably somewhat curved. This shape adapts each block M to be readily fitted into the space it occupies between the main

85 rail E and the guard rail H . Each safety block M is held in place by rivets or bolts N , which extend through the web of one rail and through the safety block M and through the web of the other rail. In case the securing devices are bolts, nuts N^2 will be present on the bolts, substantially as shown in Fig. 3. The outer end of each block is preferably beveled off and down forming the beveled end M^7 . In that side M^5 of the

90 block M which is next to the rail E , the groove M^2 is extended for the whole length of the block, and therefore extends along below the bevel M^7 . On the other side, namely: the side M^6 , the groove M^2 preferably ceases below where the beveled end begins above, namely: in the plane of the surface M^8 .

The block M fills the space between the rails up to the tread portion T of each rail for the entire distance between the bent portion H^2 of the guard rail and the opposite portion of the stock rail E . This safety block M not only holds the guard rail H steady relatively to the stock rail E and thereby increases the safety, durability and efficiency of the switch, but it prevents the foot of the person crossing the track at such places, or being on the track, from being caught between the guard rail and the main

95 (stock) rail. To those only who are unacquainted with railroading is it necessary to state that the foot of one passing over the track is very often caught between the guard rail and the adjacent main rail. In such

event, often the one so caught has to cut his shoe, more often cut off the shoe sole to liberate his foot. Sometimes the one thus caught in the rails is compelled when an on-

5 coming train reaches him before he can extract his foot to throw himself to one side and the train wheels crush off his foot.

When in proper position, the safety blocks will protect the guard rail from being overturned or otherwise pressed out of position. Hence those derailments at the switch, which sometimes occur where no guard rail is used will, by the above means, be prevented.

Only the very general and brief following
15 description of the operation of this switch is necessary, viz.: When the switch is in the position shown in Fig. 4, the switch is set for the main straight track. To set the switch for the curved track, as the train is running
20 from right to left, the tie bar C is moved forward toward the main rail F. Then the point A² of the long switch rail of track A will come close against the rail F, and the point B² of the short switch rail B will be
25 away from the rail portion E³ of the stock rail E. Then the oncoming train will pass onto the track A, E³, and move along on the curve. The guard rail H will prevent the flanges of wheels on track F from digging
30 into or injuring the rail point A² or from displacing it, and will therefore preserve it from injury and also prevent the train from a possible derailment.

The aforementioned combination is economic in service, and contributes to advance traffic, eliminate friction to a great extent, and perpetuate the long switch rail in good working condition.

In practice, the bottom of each wedge
40 block will be let down into the bed of the track, and if a cross tie or platform is there present, this bottom of the wedge block will be set down therein. The bed or tie or platform is hollowed out or cut down to let
45 the wedge block down into position. This position of the bottom of the wedge block is illustrated in Fig. 3. In the illustration of the guard rail of Fig. 1, this guard rail is shortened, in order to bring its ends within
50 the limits of the drawing. In practice, this guard rail will be much longer. Its proper length relative to its width and of the parts with which it is combined is well shown in Fig. 4.

55 What we claim as new, and of our invention and desire to secure by Letters Patent, is:—

1. In a railroad switch, a straight track rail, and an opposite stock rail curved from
60 the point where it serves as a part of the curved track, a short switch rail having a tapering end portion adapted to be moved against the stock rail the first part of its curve, the short switch rail when thus
65 brought against the stock rail constituting

a portion of the main straight track, and the long switch rail whose end tapers and is adapted to fit against the first aforementioned straight track rail, when the curved
70 track is to be used, and which long switch rail point projects along the track to a distance beyond the point of the short switch rail, and a guard rail on the track and near to and parallel with the straight portion of
75 the stock rail, and having its ends bent away from the said stock rail, one end of this rail being near the point of the tapered end of the short switch rail, the midlength of this guard rail being opposite the end of the tapered portion of the long switch rail, substantially as and for the purposes specified.

2. In a railroad switch, a straight track rail, and an opposite stock rail curved from the point where it serves as a part of the curved track, a short switch rail having a
85 tapering end portion adapted to be moved against the stock rail the first part of its curve, the short switch rail when thus brought against the stock rail constituting a portion of the main straight track, and the
90 long switch rail whose end tapers and is adapted to fit against the first aforementioned straight track rail, when the curved track is to be used, and which long switch rail point projects along the track to a distance
95 beyond the point of the short switch rail, and a guard rail on the track and near to and parallel with the straight portion of the stock rail, and having its ends bent away from the said stock rail, one end of this rail
100 being near the point of the tapered end of the short switch rail, the midlength of this guard rail being opposite the end of the tapered portion of the long switch rail, and wedge safety blocks in the guard rail, one
105 at each end portion of the guard rail, substantially as and for the purposes specified.

3. In combination with a switch and a guard rail opposite the long point thereof, the end portions of the guard rail being bent
110 away from the adjacent track rail, the safety blocks, each block in the shape of a wedge straight on one side and the other side being inclined in a curve, these blocks respectively located between said rails at the respective
115 end portions of the guard rail, each block provided at each side with a groove, in which is received the foot of the adjacent rail, the top of the wedge block being immediately below the tread flange of the rail, substantially
120 as and for the purposes specified.

4. In combination with a switch and a guard rail opposite the long point thereof, the end portions of the guard rail being bent
125 away from the adjacent track rail, the safety blocks, each block in the shape of a wedge straight on one side and the other side being inclined, these blocks respectively located between said rails at the respective end portions of the guard rail, each block provided
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at each side with a groove, in which is received the foot of the adjacent rail, the top of the wedge block being immediately below the tread of the flange of the rail, substantially as and for the purposes specified.

5. In combination with a switch and a guard rail opposite the long point thereof, the end portions of the guard rail being bent away from the adjacent track rail, the safety blocks, each block in the shape of a wedge straight on one side and the other side being inclined, these blocks respectively located between said rails at the respective end portions of the guard rail, each block provided at each side with a groove, in which is received the foot of the adjacent rail, the top of the wedge block being immediately below the tread of the flange of the rail, and the outer end portion of the block beveled from the top downward, substantially as and for the purposes specified.

6. The combination of a switch, a guard rail opposite the long point of the switch, the end portions of the guard rail being bent away from the adjacent track-rail, a wedge safety block, inserted between the guard rail and the adjacent main track rail, said block provided near its base with a groove adapted to receive the adjacent foot portion of the adjacent rail, one side of the block being straight, the other side being inclined, the

top of the block when in place being substantially in the plane of the under side of the flange tread of the rails, the top of the block near the broad end portion of the block being beveled down to the end, substantially as and for the purposes herein before specified.

7. The combination of a switch, a guard rail opposite the long point of the switch, the end portions of the guard rail being bent away from the adjacent track-rail, a wedge safety block, inserted between the guard rail and the adjacent main track rail, said block provided near its base with a groove adapted to receive the adjacent foot portion of the adjacent rail, one side of the block being straight, the other side being inclined, the top of the block when in place being substantially in the plane of the under side of the flange tread of the rails, the top of the block near the broad end portion of the block being beveled down to the end, the said groove in the inclined side of the block stopping short of said broad end, substantially as and for the purposes herein before specified.

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Attest:

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