

(No Model.)

2 Sheets—Sheet 1.

C. RICHEY.
RAILROAD SWITCH.

No. 592,448.

Patented Oct. 26, 1897.

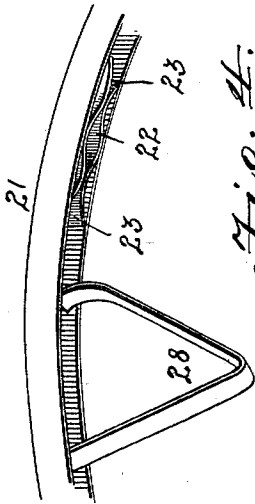


Fig. 4.

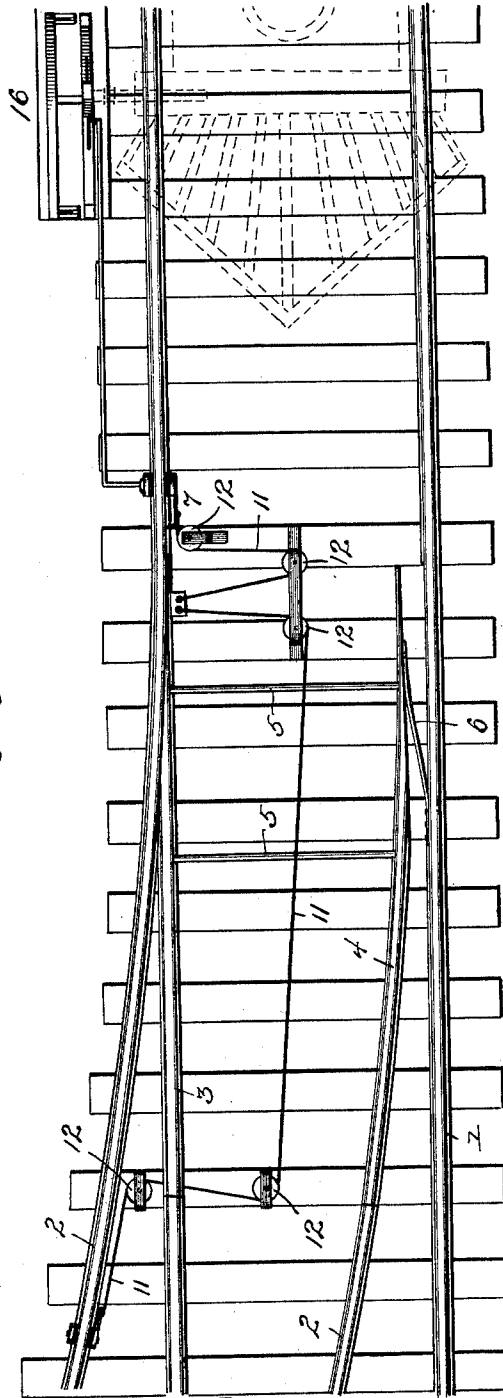


Fig. 7.

Witnesses

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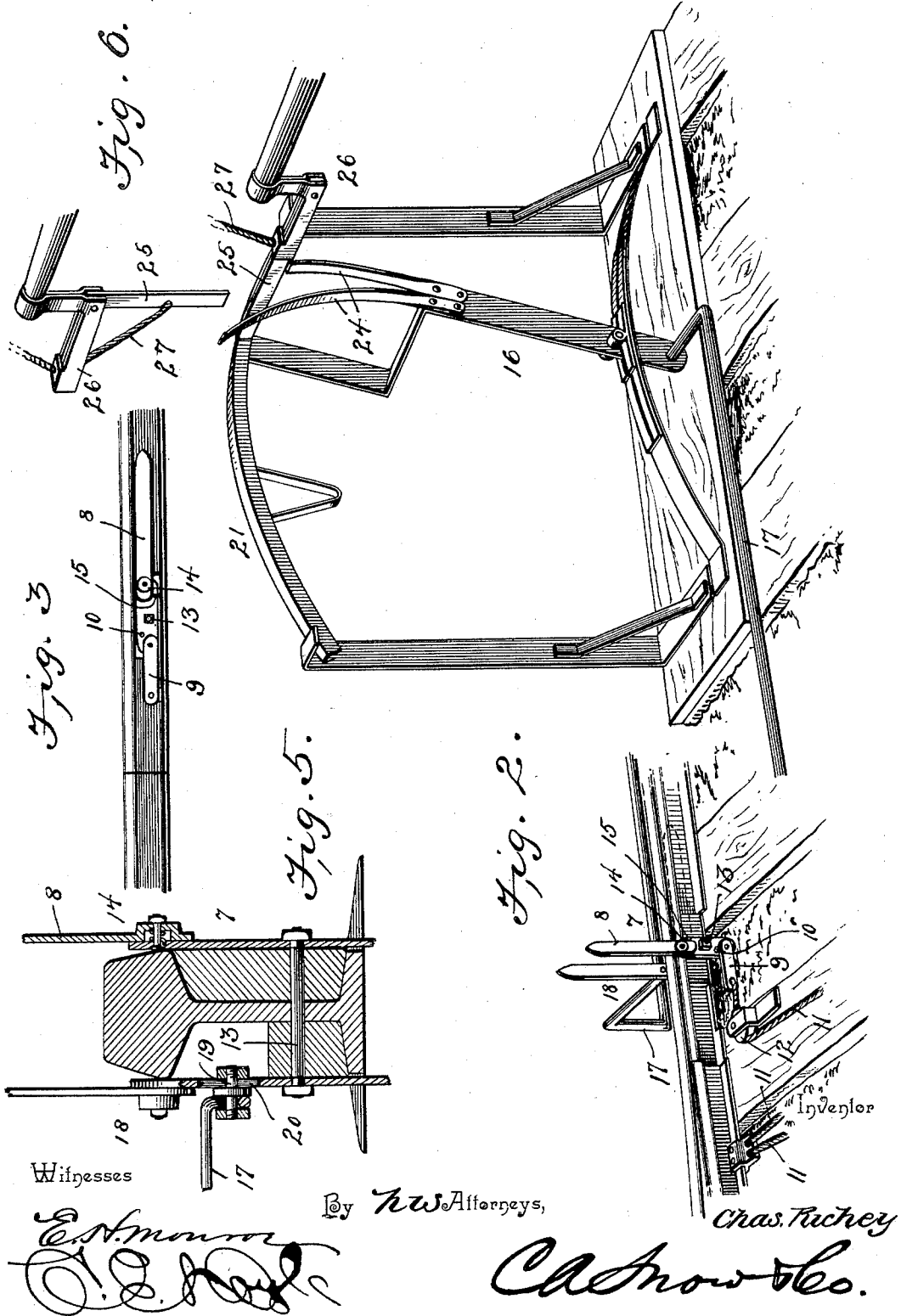
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

CHARLES RICHEY, OF ATLANTA, GEORGIA, ASSIGNOR OF ONE-HALF TO
WILLIAM FREEMAN, OF SAME PLACE.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 592,448, dated October 26, 1897.

Application filed February 12, 1897. Serial No. 623,201. (No model.)

To all whom it may concern:

Be it known that I, CHARLES RICHEY, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Railroad-Switch, of which the following is a specification.

My invention relates to railway-switch mechanism, and has for its object to provide a simple, inexpensive, and efficient construction and arrangement of parts whereby the setting of the switch-rails to open either the main track or the siding-track may be accomplished by means carried by the rolling-stock of the road, as by the locomotive of a train, the parts being so constructed and arranged as to prevent the adjustment of the switch mechanism manually or by any other means than those, as specified, which are carried by the rolling-stock.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a plan view of a portion of a track to which is applied a switch mechanism constructed in accordance with my invention. Fig. 2 is a perspective view of a switch-stand, trip, and connections, the trip being arranged in the position which it occupies when the switch-rails are adapted to be set to open the siding-track by an approaching train. Fig. 3 is a side view of a trip in the position which it occupies when arranged to avoid contact with the wheels of the rolling-stock, whereby the main track is permanently open. Fig. 4 is a detail view in perspective of the means for holding the switch-lever in its position to maintain the main track open.

Similar numerals and letters of reference indicate corresponding parts in all the figures of the drawings.

1 designates the main and 2 the siding track rails, while 3 4 represent switch-rails, respectively, arranged for alinement with the main and siding track rails and connected for simultaneous movement by a switch-bar 5, an actuating-spring 6 being arranged in contact

with one of the switch-rails, as the rail 4, to yieldingly hold the switch-rails in position to maintain the main track open.

Pivotally mounted upon one of the main-track rails contiguous to the free end of the switch-rail 3 is a trip 7, of which the long arm 8 is fulcrumed at an intermediate point, while the short arm 9 is pivoted to its lower extremity and is capable of swinging movement to bring the short arm into alinement with the long arm when, as illustrated in Fig. 3, the long arm is in a horizontal position. The stop 10 is formed on the long arm for contact by the short arm to limit the independent swinging movement of the latter and hence maintain the short arm in a position at right angles to the long arm, as illustrated in full lines in Fig. 2. The short arm of the trip is terminally connected by flexible means, such as a connection 11, which traverses intermediate direction-pulleys 12, whereby when the trip is depressed in the direction indicated by the arrow *a* in Fig. 2 said flexible connection is strained, and the free end of the switch-rail is removed from the main-track rail, in contact with which it is normally disposed.

The long arm of the trip normally occupies an upright position, whereby it is adapted to be encountered by each wheel traversing the track upon which the trip is mounted, and as the free end of the trip when depressed by means of an object passing thereover occupies a position contiguous to the free end of the switch-rail it will be seen that a wheel which has depressed the trip will immediately pass between the free end of the switch-rail 3 and the contiguous portion of the siding-track, while the opposite wheel will be received by the free end of the switch-rail 4. In order to allow rolling-stock to pass out of the siding-track or traverse the main track in the opposite direction to that indicated by the arrow *a*, the long arm of the trip is provided above the plane of its fulcrum, which consists of a transverse bolt or rock-shaft 13, with a break-joint 14, said joint being provided with a stop 15, which prevents the folding section of the arm from being advanced in the direction of the arrow *a* beyond alinement with the main section of said arm. The position

of the folding section when depressed by a wheel passing thereover in the opposite direction to that indicated by the arrow *a* is indicated in dotted lines in Fig. 2.

5 From the foregoing description it will be seen that with only those parts which have been described each train in approaching the switch in the direction indicated by the arrow *a* would pass from the main track onto the
10 switch-rails 4, and thence pass to the siding-track; but it is desirable to provide the switch with means whereby the main track may be maintained permanently open, and in order to accomplish this I employ a switch-lever 16,
15 fulcrumed at an intermediate point upon a suitable stand and having its lower extremity connected by a pitman or operating-rod 17 with an arm 18, fixed to the rock-shaft of the trip at the outer side of the main-track rail,
20 the connection between the operating-rod or pitman and said auxiliary arm being adjustable as by means of a fulcrum-pin 19 engaging a slot 20 in the arm.

The upper extremity of the switch-lever
25 operates in a segmental guide 21, carried by said stand, and at an intermediate point this guide is fitted with a clasp 22, consisting of duplicate oppositely-disposed springs having concaved facing sides which combine to form
30 a pocket for the reception of the extremity of the switch-lever, while the extremities of the spring are deflected, respectively, in opposite directions, as shown at 23, to facilitate the entrance of the end of the switch-lever into the pocket.
35

Projecting upwardly from the switch-lever and terminally curved forward in the direction of the arrow *A* are main and auxiliary yielding fingers 24, adapted to be engaged by
40 an actuating-arm 25, which is carried by the rolling-stock. In the construction illustrated this actuating-arm is pivotally mounted upon a bracket 26, carried by the pilot of the engine, and attached thereto is an operating
45 cord or chain 27, which extends through suitable guides and terminates within reach of the engineer—as, for instance, within the cab of the engine. When the engineer of an approaching train desires to move the switch-
50 lever from the position shown in Fig. 2, (at which adjustment the trip is in the upright position, also illustrated in Fig. 2, and is adapted to be engaged by the wheels of the train to open the siding-track,) he extends the actuating-arm (see Fig. 2) to engage the forward
55 or long actuating-finger of the switch-lever and thereby swings the switch-lever forward until its extremity is engaged by the spring-clasp. When the switch-lever is in this position, the main or long arm of the trip is in the horizontal position indicated in Fig. 3, and the trip is held in this position by the engagement of the clasp with the switch-lever.

With the parts disposed as described the
65 trip is out of the path of passing wheels, and hence trains pass without interference along

the main track without danger of deflection of the switch-rails.

When it is desired to set the trip for engagement by the wheels of a train which it is
70 desired to run upon the siding, the engineer of said train extends the actuating-arm in the same manner as above described, and causes the same to engage the shorter finger of the switch-lever, which is then within
75 reach by reason of the upright position of the switch-lever, and thereby advance the switch-lever out of the clasp and into contact with a strong return-spring 28. This repression of the return-spring continues until the actuating-arm on the engine slips from the extremity
80 of the shorter finger of the switch-lever, whereupon the expansive force of said spring throws the switch-lever through and beyond the clasp and returns it to the inclined position illustrated in Fig. 2, whereby the trip is in the
85 upright position in the path of the wheels of a passing train. Hence inasmuch as the engineer of the approaching train has reset the switch-lever, and thereby adjusted the trip in
90 advance of his train, the foremost wheels of the train will come in contact with the trip and hence open the siding-track.

It will be understood that each wheel traversing the track upon which the trip is mounted
95 sets the switch-rail for itself, the trip returning after each depression to its normal position in the path of the succeeding wheel. This return of the trip is due to a yielding device, as a spring 29, which is connected to
100 the auxiliary arm of the trip.

The trip mechanism is preferably duplicated, as shown at 30, contiguous to the inside
105 of the siding-track rail, the same including a trip identical in construction with that hereinbefore described and having a flexible connection with the free end of the switch-rail, whereby a train moving out of the siding or in a direction opposite to that indicated by the arrow *A* will actuate the switch-rails.
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Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.
115

Having described my invention, what I claim is—

1. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, of a pivotal trip arranged contiguous to one of the main-track rails and operatively connected with the switch-rails, whereby when depressed in one direction it moves the switch-rails from their normal position, the extremity of the trip,
120 when depressed, to shift said rails being contiguous to the free end of the adjacent switch-rail, whereby the wheel which depresses the trip passes onto the switch-rail before releasing the trip, substantially as specified.
125

2. In a railway-switch mechanism, the combination with switch-rails yieldingly held in
130

their normal position, of a pivotal trip flexibly connected at its lower end with the switch-rails and yieldingly held in an upright position with its upper arm in the path of the

5 wheels of rolling-stock, said arm being adapted to be depressed in one direction to move the switch-rails out of their normal position, and being jointed above the fulcrum-point to fold in the opposite direction without affecting the lower portion of the trip or the switch-rails, substantially as specified.

3. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, of a pivotal trip having 15 a main arm fulcrumed upon a main-track rail in the path of the wheels of rolling-stock, a short arm pivoted upon the main arm and having its independent movement limited by a stop, and connections between the short arm 20 and the switch-rail, the long arm being adapted to be depressed in one direction to move the switch-rails out of their normal position and to be moved in the opposite direction without affecting the switch-rails, substantially as specified.

4. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, of a trip having a long arm fulcrumed at an intermediate point and 30 jointed above its fulcrum to fold in one direction, the joint being arranged approximately in the plane of the tread of the contiguous main-track rail, a short arm pivotally mounted upon the lower end of the main arm and 35 having its swinging movement limited by a stop, and flexible connections between the extremity of the short arm and the switch-rails, substantially as specified.

5. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, a jointed trip having a long arm fulcrumed upon a main-track rail and a short arm carried by the long arm and having a limited swinging movement, and 45 connections between the short arm and the switch-rails, of a switch-lever operatively connected with said trip, and a clasp arranged in the path of and adapted to engage the switch-lever to secure the latter against acci-

dental movement, the long arm of the trip 50 being in a horizontal position when the trip-lever is engaged in said clasp, substantially as specified.

6. In a railway-switch mechanism, the combination with switch-rails yieldingly held in 55 their normal position, a trip having pivotally-connected long and short arms, of which the former is fulcrumed upon a main-track rail and the latter has a limited swinging movement with relation thereto, and connections 60 between the short arm of the trip and the switch-rails, of a switch-lever connected with the trip and adapted to swing the long arm thereof to its horizontal position out of the path of passing wheels, a yielding clasp arranged in the path of and adapted to engage 65 the switch-lever, and a retracting-spring arranged beyond the clasp and adapted, when the switch-lever is released, after having been brought in contact with to depress the spring, 70 to throw the switch-lever beyond the clasp, substantially as specified.

7. In a railway-switch mechanism, the combination with switch-rails yieldingly held in their normal position, a trip having pivotally- 75 connected long and short arms, of which the former is fulcrumed upon a main-track rail and the latter has a limited swinging movement with relation thereto, and connections between the short arm of the trip and the 80 switch-rails, of a switch-lever connected with the trip and adapted to move the latter from its operative vertical to a horizontal position out of the path of the wheels of rolling-stock, a clasp and a contiguous return-spring for re- 85 spectively engaging and returning the switch-lever, fingers of different lengths carried by the switch-lever, and means adapted to be carried by rolling-stock for engaging said fingers separately, to accomplish the adjustment 90 of the lever, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES RICHEY.

Witnesses:

JOHN H. SIGGERS,
HAROLD H. SIMMS.