

(No Model.)

2 Sheets—Sheet 1.

R. W. FARRELL.
SWITCH WORKING MECHANISM.

No. 551,538.

Patented Dec. 17, 1895.

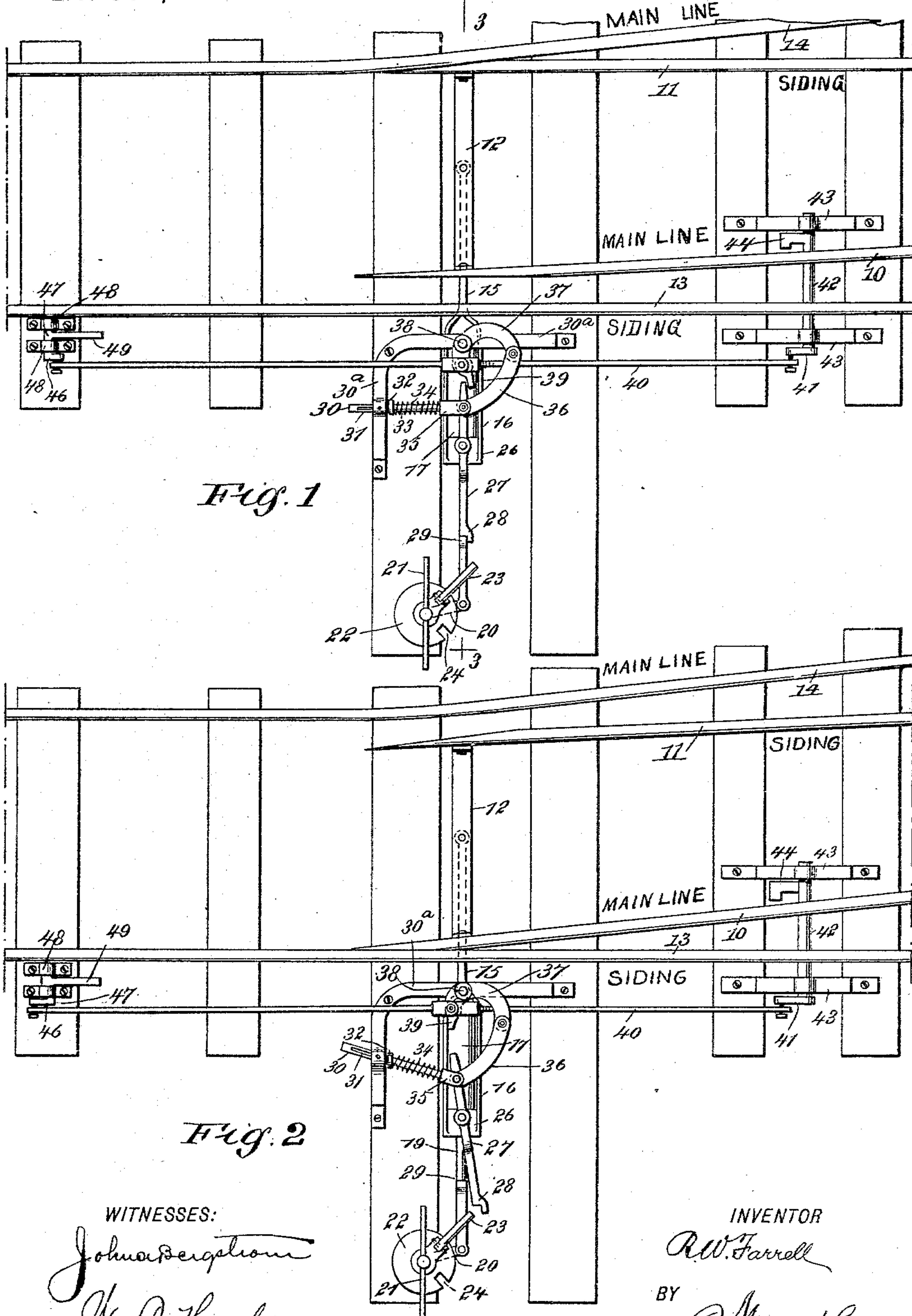


Fig. 1

Fig. 2

WITNESSES:

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W. B. Hutchinson

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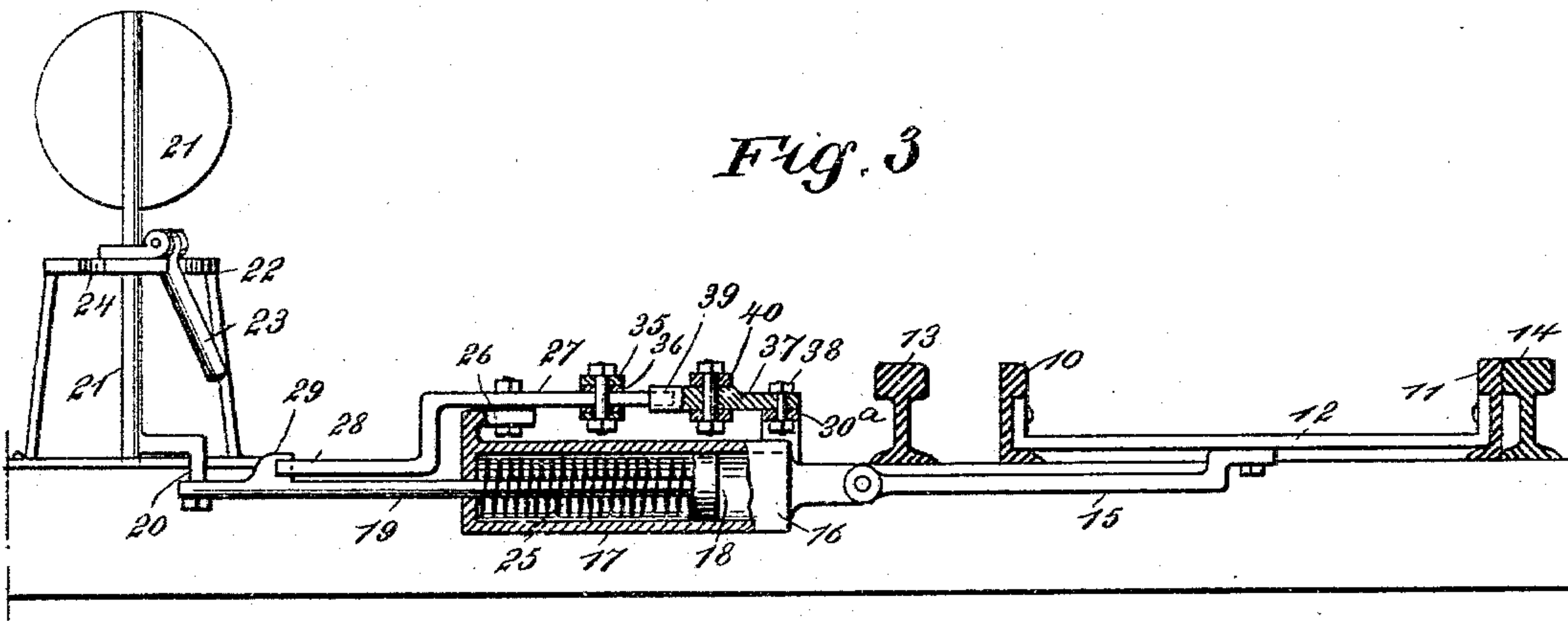
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R. W. FARRELL.
SWITCH WORKING MECHANISM.

No. 551,538.

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WITNESSES:

John A. Bergstrom
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UNITED STATES PATENT OFFICE.

ROBERT W. FARRELL, OF VINCENNES, INDIANA.

SWITCH-WORKING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 551,538, dated December 17, 1895.

Application filed November 21, 1894. Serial No. 529,452. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. FARRELL, of Vincennes, in the county of Knox and State of Indiana, have invented a new and Improved Switch-Working Mechanism, of which the following is a full, clear, and exact description.

My invention relates to improvements in switch-working mechanism; and the object of my invention is to produce a simple positively-working apparatus which may be used in connection with an ordinary switch and switch-stand, and which has tripping devices actuated by a passing train or engine and adapted to close automatically a switch so that there will be no possibility of the switch remaining open and accidentally side-tracking the train.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

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

Figure 1 is a plan view of the switch and working mechanism embodying my invention, the switch being shown open. Fig. 2 is a similar view, but with the switch closed. Fig. 3 is a longitudinal section on the line 3 3 of Fig. 1.

The switch is provided with the usual switch-rails 10 and 11 which are used in conjunction with the rails 13 and 14 in the ordinary manner, the rail 10 being adapted to connect with the main line and the rail 11 with a siding, and the two rails 10 and 11 are connected by the usual switch-bar 12 which is pivotally connected with a switch-rod 15 extending laterally beneath the rail 13 and merging in a casing 16 to which it is attached, this casing being formed integral with the spring barrel or cylinder 17, in which is contained the piston 18 connecting with a piston-rod 19 which projects from the outer end of the spring barrel or casing, as shown clearly in Fig. 3, and is pivotally connected with the crank 20 of the target 21, which is of the usual kind, turning in the customary manner in the switch-stand 22 and having thereon a pivoted handle or lever 23 by which the target may be turned and the

switch operated, the handle being locked so as to hold the switch open or closed by dropping it into the customary notches 24 of the switch-stand 22.

The piston 18 is normally pressed inward by a spring 25 which is coiled around the piston-rod 19, as shown in Fig. 3. Above the spring-barrel 17 and rigidly secured to it is a bracket 26 on which is pivoted the dog 27 which extends outward at one end beyond the cylinder and has this end notched, as shown at 28, to engage a shoulder 29 on the piston-rod 19, and when the rod is pulled out, as hereinafter described, and the spring 25 compressed the dog engages the shoulder and holds the spring compressed until the dog is tripped, as hereinafter specified.

The dog 27 is near its inner end pivotally connected with a rod 30 which is longitudinally slotted, as shown at 31, to enable it to slide on its pivot in the bracket 30^a, and on the bar next the bracket 30^a is a loose collar 32, and around the bar next the collar is a spring 34 which presses against the head 35 of the bar, and thus the pressure of the spring normally swings the dog 27 into a position parallel with the piston-rod 19, so that the dog may engage the shoulder 29 on the said piston-rod. The dog 27 is also near its inner end pivotally connected by a curved link 36 with a curved tripping-lever 37, which is fulcrumed, as shown at 38, on the bracket 30^a and has its free end 39 adapted to engage the inner end of the dog 27, as shown in Fig. 1, and so tilt the dog when the lever is moved and throw it out of engagement with the shoulder 29 of the piston-rod.

The lever 37 is pivotally connected with a rod 40 which extends parallel with the rail 13, and this rod is at one end pivotally connected with the crank 41 of a shaft 42 which is journaled preferably beneath the track-rails 10 and 13 in suitable supports 43 and has a striking-arm 44 which extends substantially parallel with the crank 41. The opposite end of the rod 40 is connected with the crank 46 of a shaft 47 which is journaled in supports 48 at the side of the track and is provided with a striking-arm 49 which extends substantially opposite from the crank 46.

It will be seen that to open the switch so as to connect with the siding it is necessary

to first have the dog 27 in engagement with the shoulder 29 on the piston-rod, as otherwise if the target is turned to throw inward the piston-rod the rod slides in the spring-barrel without actuating the switch.

When the lever 23 is turned to the outer notch 24, the piston-rod is turned outward, compressing the spring 25, and the dog 27 flies into engagement with the shoulder 29, so that when the lever 23 is turned inward to open the switch and throw the target, the piston-rod, the dog 27, the spring-barrel 17, and the switch-rod 15 all travel together, and if the lever 23 is thrown into the inner notch the switch will be held in this position with the dog in engagement, as just described. Supposing now a train comes along the main track from the side on which the shaft 42 is located, the first wheel of the engine will strike the arm 44, tilt the shaft 42 and move the rod 40 longitudinally so that the lever 37 will be similarly actuated and its end 39, striking the inner end of the dog, will tilt the dog and throw the dog out of engagement with the shoulder 29; but the piston-rod cannot move outward, as it is held by the locked lever 23, and so the tension of the spring 25 is exerted to pull outward the spring-barrel, the rod 15, the switch-bar 12, and the rails 10 and 11, thus closing the switch. If the train is coming in the opposite direction, the arm 49 is struck and the switch mechanism similarly operated. It will be seen, then, that the apparatus always holds the switch closed except when it is set by first turning the lever to the left to engage the dog 27 with the piston-rod and then turning the lever back, in which case the mechanism is sure to be tripped by a passing train and the switch closed, as above described.

It will be noticed that when the piston-rod is pulled out to permit the dog 27 to engage the shoulder 29 the pressure of the spring 34 causes the dog to engage the said shoulder, while the same pressure through the medium of the link 36 tilts the lever 37 and brings it into position to engage the inner end of the dog.

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

1. The combination, with the switch rails, the spring barrel connected with the rails, the spring-pressed piston rod extending from the barrel, the switch stand pivotally connected with the rod, and the shoulder on the piston rod, of the dog on the spring barrel to engage the shoulder on the piston rod, a spring device to throw the dog into engagement with the piston rod, a tripping lever to tilt the dog, a link connecting the lever and dog, the connecting rod extending parallel with the track, and the striking arms on the track to move the connecting rod, substantially as described.

2. The combination, of the switch rails, a spring device for throwing the same in one direction, a dog connected to the spring device, a stop to be engaged by the dog, a rod pivoted adjacent to the dog and having one end connected thereto, a spring on the rod adapted to hold the dog normally in position to engage the stop, a tripping lever pivoted adjacent to the spring device and adapted to be actuated from a passing train, said lever having one end adapted to engage the dog and throw the same out of engagement with the stop, and a link connecting the opposite end of the lever with the said dog, substantially as set forth.

3. The combination of the switch rails, a spring device for throwing the same in one direction, a lever for moving the rails in the other direction, a stop formed on the lever, a pivoted dog having its rear end adapted to engage the said stop, a tripping lever pivoted adjacent to the dog and having one end adapted to engage one side of the forward end of the pivoted dog, means for actuating said tripping lever from a passing train, and a link coupled at one end to the tripping lever and at its other end to the dog, substantially as set forth.

ROBERT W. FARRELL.

Witnesses:

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ESCO WALK.