(No Model.) 2 Sheets—Sheet 1.

J. & C. McGHEE.

SWITCH WORKING MECHANISM.

No. 531,270. Patented Dec. 18, 1894.

Fig. 1.

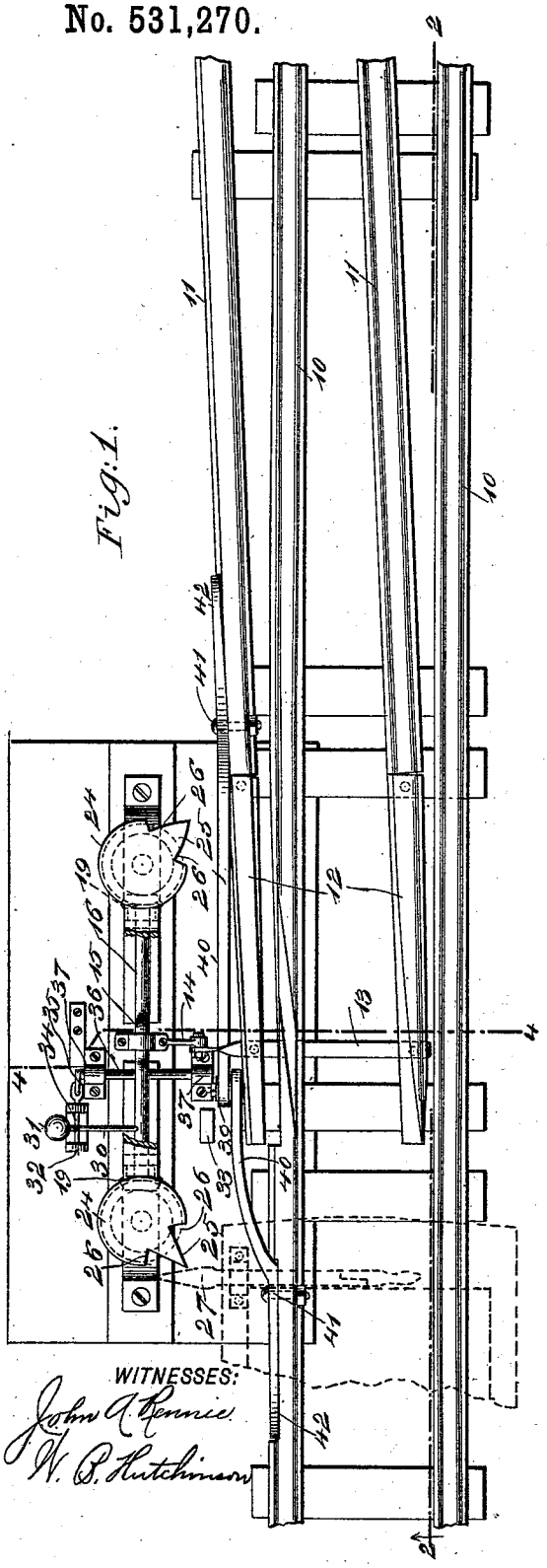
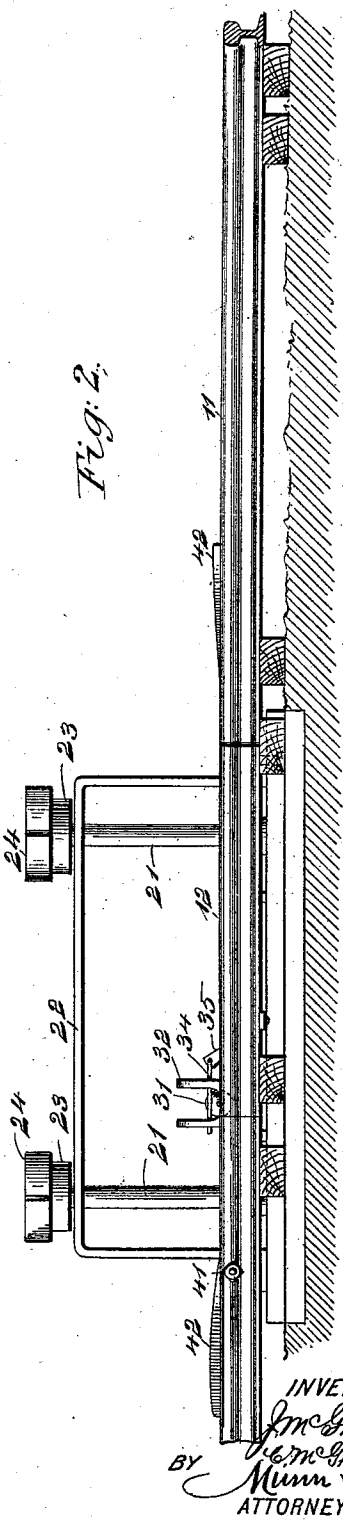


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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SWITCH WORKING MECHANISM.

No. 531,270. Patented Dec. 18, 1894.

Fig. 3.

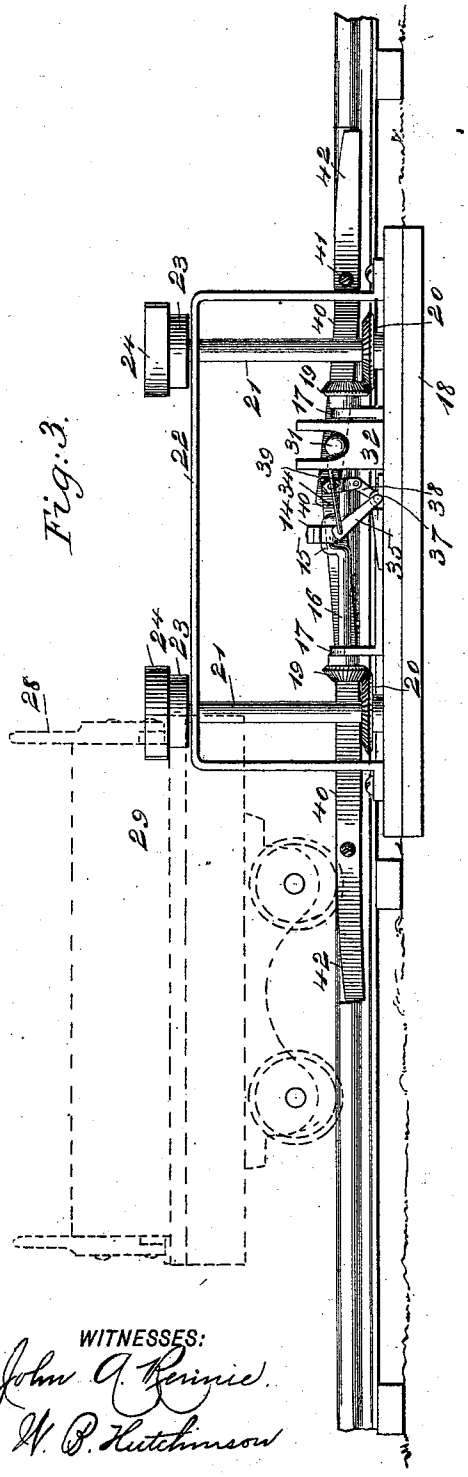
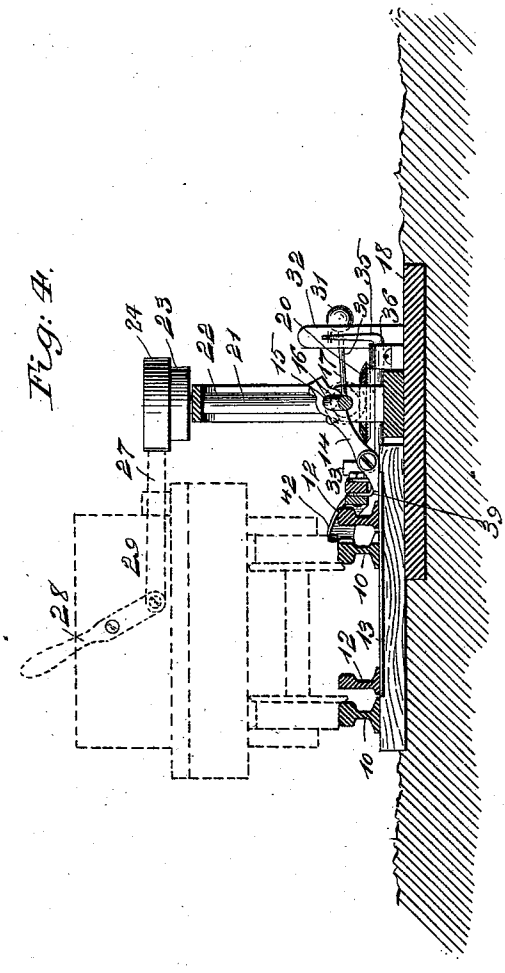


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES McGHEE AND CHARLES McGHEE, OF SANDY VALLEY, ASSIGNORS OF ONE-THIRD TO DAVID FLEMING, OF DE LANCEY, PENNSYLVANIA.

SWITCH-WORKING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 531,270, dated December 18, 1894.

Application filed July 12, 1894. Serial No. 517,328. (No model.)

To all whom it may concern:

Be it known that we, JAMES McGHEE and CHARLES McGHEE, both of Sandy Valley, in the county of Jefferson and State of Pennsylvania, have invented a new and Improved Switch-Working Mechanism, of which the following is a full, clear, and exact description.

Our invention relates to improvements in railway switches and in the means for working such switches; and the object of our invention is to produce an extremely simple, durable and comparatively inexpensive mechanism, which may be applied to an ordinary railway switch, which may be operated to work the switch from a passing train, and which is also provided with means for automatically locking the switch so as to hold the main line open and prevent the switch from being tampered with.

To these ends our 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 broken plan view of our improved switch working mechanism, as applied to a switch. Fig. 2 is a longitudinal section on the line 2—2 of Fig. 1. Fig. 3 is a side elevation of the switch working mechanism as applied to a switch; and Fig. 4 is a cross section on the line 4—4 of Fig. 1.

The main line rails 10 are connected with the siding rails 11 by the ordinary switch rails 12 which are provided with the usual switch bar 13 so that both may be thrown in unison, and the switch bar connects by the pitman 14 with the crank 15 of a shaft 16, which is held in suitable supports 17 and extends parallel with the track, while the supports 17 and the adjacent mechanism are supported on a base plate 18. The shaft 16 has, at its ends, pivoted pinions 19 which mesh with horizontally turning gear wheels 20 on the vertical shafts 21, each of which constitutes a switch stand, and these shafts are, at their feet stepped in suitable bearings while their upper ends turn in a supporting frame 22. The shafts 21 have top plates 23 to which are secured the striking plates 24, these having on their inner edges projecting tapering arms 25, and the plates 24 are notched at each side of the arms, as shown at 26, to make sure that the contact lever 27, shown by dotted lines in Figs. 1 and 4, may effectively strike the arms. The turning of either striking plate 24 and shaft 21 turns the shaft 16 by means of the gear-connection described, and the crank 15 is swung so as to move the switch bar 13 and open or close the switch.

The striking lever 27 may be of any suitable kind, and may be operated in any convenient way, the lever being adapted to be carried by a locomotive or a car and, as illustrated, it is moved outward by a lever 28 which is fulcrumed on a car 29, as best shown in Fig. 4. It will be seen that striking one of the arms 25 throws the switch in one direction and that striking the other arm throws it back, and hence, a lever 27 on the front end of the train may be made to strike the first arm 25 and open the switch and a similar lever on the rear end of the train may be made to strike the second arm 25 and close the switch, or if the train is on a switch and is to back out on the main track, a lever on the back end of the train would throw the switch for the side track, and the lever on the engine would throw the switch for the main track.

The switch is held either open or closed by an arm 30 having a weight 31 at one end and this is especially intended to hold the switch so that the main line will be open, as illustrated in Fig. 1. This weight may be made too heavy to be lifted by hand, in which case it will serve as a lock to prevent people from tampering with the switch, or the arm may be automatically locked so as to hold the switch open, as described presently.

The switch arm 30, when thrown outward, is adapted to lie in the forked post 32 and, when thrown inward it is adapted to rest on the post 33. It is held locked in the forked post by a pin 34 which projects through the members of post above the arm, the pin being actuated by a crank 35 on the shaft 36 which turns in suitable bearings 37 and is arranged at right angles to the shaft 36, as clearly shown in Fig. 1. The shaft 36 has, at its inner end, a crank 38 which connects by means of a link

39, best shown in Fig. 3, with the meeting ends of the contact levers 40 which are fulcrumed at 41 on the rails 10 and 11 adjacent to the switch, as shown in Fig. 1, one rail lying close to the main line and the other to the siding, and the outer ends of these rails are curved slightly and adapted to project upward into the path of the wheel of a passing train.

It will be seen that when a train approaches the switch, it will first strike one of the ends 42 of the lever 40, thus raising the inner ends of both levers 40 and lifting the crank 38, which turns down the crank 35 of the shaft 36, and this pulls out the pin 34, as shown in Fig. 3, leaving the rod 30 and weight 31 free to swing. At about the time the pin 34 is pulled out the lever 27 strikes the arm 25 of the striking plate, thus working the switch, as already described, and the inner ends of the levers 40 drop and throw the pin 34 back into the arms of the forked post 32, and if the switch has been thrown into the position shown in Fig. 1 so as to leave the main line open the arm 30 will be locked so that the main line will be perfectly safe for traffic.

In practice, it will be understood that all the working mechanism except the projecting arms 25 will be incased so as to protect the same from the weather.

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

1. The combination, with the main and switch rails, of pivoted levers arranged in alignment alongside the track, the crank-shaft arranged at a right angle to the track and having its bent inner end pivotally connected with the inner ends of said levers, a locking pin attached to the outer bent end of the shaft, a rock shaft arranged parallel to the track, and means for connecting it with the switch rails, a weighted arm fixed to said shaft, and two vertical shafts geared with the rock shaft, and having striking plates which are provided with lateral arms for engagement with a device projected from a passing train, as shown and described.

2. The combination, with the switch, the crank shaft adjacent to the switch and adapted to throw it, and the vertical shafts geared to the crank shaft and provided with striking arms, of the arm on the crank shaft, the forked post to receive the arm, the pin adapted to move through the arms of the post, the crank shaft for actuating the pin, and levers fulcrumed at the side of the track and adapted to turn the shaft and move the pin, substantially as described.

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