G. H. SOULE.
Railway-Switch.

No. 210,216. Patented Nov. 26, 1878.

Fig:1.

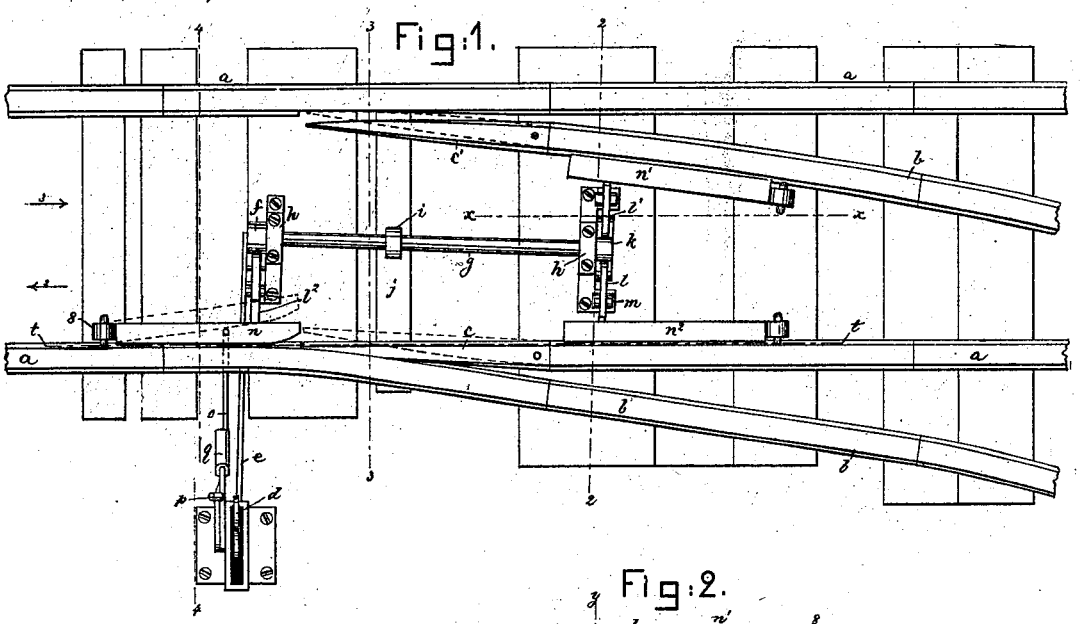


Fig:2.

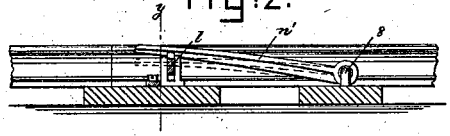


Fig:3.

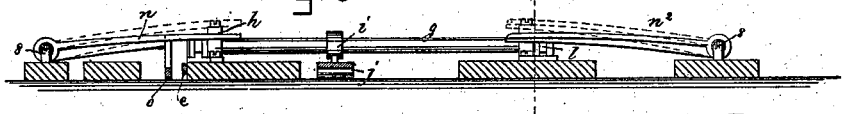


Fig:4.

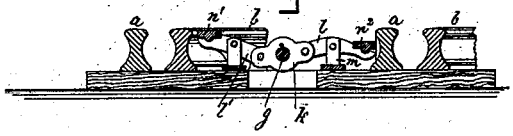


Fig:5.

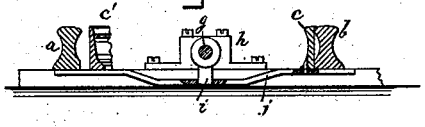
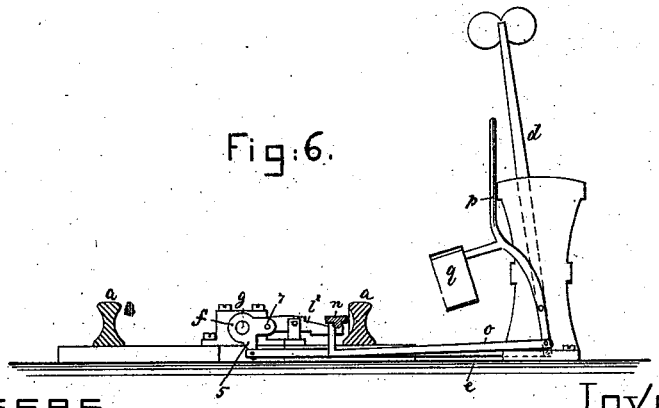


Fig:6.



Witnesses.

L. A. Connor

N. E. Whitney.

Inventor.

George H. Soule

by Crosby & Gregory Attys

UNITED STATES PATENT OFFICE.

GEORGE H. SOULE, OF BANGOR, MAINE, ASSIGNOR OF ONE-HALF HIS RIGHT TO CLARK SOULE.

IMPROVEMENT IN RAILWAY-SWITCHES.

Specification forming part of Letters Patent No. **210,216**, dated November 26, 1878; application filed May 27, 1878.

To all whom it may concern:

Be it known that I, GEORGE H. SOULE, of Bangor, in the county of Penobscot and State of Maine, have invented an Improvement in Railroad-Switches, of which the following is a specification:

This invention relates to railroad-switches of the class operated automatically by the train.

The invention consists, primarily, in the combination, with switch-points and a rocker-shaft to move them, of an auxiliary lever and a governor therefor to automatically move and retain the auxiliary lever in such position with relation to the safety-lever as to insure the continuance of the cars upon the main line, such governor and auxiliary lever being adapted to be moved by hand when it is desired that a train pass from the main line to a siding.

Figure 1 represents, in plan or top view, a sufficient portion of a railway bed and track to illustrate a practical embodiment of my invention; Fig. 2, a section on the line *x x*, Fig. 1; Fig. 3, a section on line *t t*, (see Fig. 1 between the track and auxiliary levers;) Fig. 4, a section on lines 2 2; Fig. 5, a section on lines 3 3, and Fig. 6 a section on lines 4 4.

The main track is designated by the letters *a*, the siding-tracks by *b*, and the switch-points by *c c'*. The switch-lever *d*, supported in any usual stand or case, is connected by link *e* with an ear, 5, of an arm, *f*, attached to a rock-shaft, *g*, held in suitable bearings *h h*. This rock-shaft has secured to it a finger, *i*, which engages a bar, *j*, connected with, and, as the rock-shaft is moved, shifts, the switch-points *c c'* to place them in position with reference to the track *a*, so as to direct the cars upon either the main track or siding.

To place and retain these switch-points automatically in position to insure the retention of the cars on the main track, unless it is desired to pass them to a siding, I have arranged to operate this rock-shaft automatically by the passing train. To do this I have added to the rock-shaft, at or near its rear end, an arm, *k*, provided with two ears, (see Fig. 4,) and have connected such ears with safety-lever *l l*^{1}, pivoted upon stands *m*, the outer ends of such levers being extended toward the tracks *a b*, so that the wheel-flanges of a passing car will strike that one of the levers *l l*^{1} which happens to be elevated; but it will be observed that the ends of the safety-levers next the main track *a* are always depressed when the main line is closed, while the safety-lever next the track *b* will, at such time, be elevated, so that a car passing from a siding toward the main track will strike it and move the switch-points, so as to insure the passage of the train upon the main track. The connection between the safety-levers and arm is made by a pin in one entering a slot in the other, the slot allowing the lever and arms to move in different arcs.

At the front end of the rock-shaft, and connected with the ear 7 of the arm *f*, is the primary safety-lever *l*^{2}, it extending toward the main track *a* in advance of the switch-point *c*, and substantially in line with the switch-lever *d*, but, unlike levers *l l*^{1}, it does not extend so close to such track that its end will be struck and depressed by the wheel-flanges of a passing car. This primary safety-lever is arranged to be depressed by the car-wheel only through the instrumentality of an auxiliary lever, *n*, so pivoted at its rear end 8 as to permit the outer end of the lever to move freely up and down and laterally under the action of the car-wheels and lever *l*^{2}. This lever *n* is connected by link *o* with a pivoted lever, *p*, weighted, as at *q*, or otherwise so operated through a spring that the auxiliary lever is held pressed toward the track *a*, but capable of being moved laterally away from such track, as shown in dotted lines, Fig. 1, when a car passes from the siding track *b b* to the main track *a*.

A car moving from track *b* to track *a*, in the direction of arrow 2, would strike the auxiliary lever *n*^{1}, and, through safety-lever *l*^{1}, rock the shaft *g* and shift the switch-points into the position shown in dotted lines, insuring the passage of the car upon the main track *a*, and as the car-wheels meet lever *n* they will strike its beveled or rounded front end and move it horizontally and laterally over the surface of the primary safety-lever, *l*^{2}, without depressing it, and when the wheel of the last car passes such lever, it is automatically thrown, through

the action of the weight, over against the track *a*.

I denominate the lever *p*, weight *q*, and link *o* as the "governing mechanism" for the auxiliary lever; but instead of the particular devices shown I might employ any well-known equivalent to operate by a weight or spring.

If the train should be moved from the main track *a* in the direction of arrow 3, Fig. 1, and the switch-points were as in dotted lines, as they would be left by the train when passing from track *b* to track *a*, then the auxiliary lever *n* would be depressed and act upon the primary safety-lever to oscillate the rock-shaft and automatically shift the points *c c'* to the positions shown in full lines, Fig. 1, when the train would take the main track.

If it is desired to run the train from the main track *a* back again to the siding-track *b*, then the lever *p* must be moved by hand to throw lever *n* away from track *a*, as in dotted lines, and the car-wheels will pass without depressing it and rocking shaft *g*.

The wheels of a train passing along the main line in the direction of arrow 2, after the passage of a train from the siding-track *b* upon the main track *a*, strike the auxiliary lever n^2 and shift the switch-points into correct position to maintain the train upon the main track *a*. When passing over the main track *a*, in the direction of arrow 2, the switch-points are moved before the wheels strike the points, and as one wheel rides upon that switch-point which forms the continuance of the main track, the flange of the opposite wheel passes between the other switch-point and the main track *a* and locks the switch-points, so that they cannot be accidentally shifted. The levers n^1 n^2 ease the blow of the wheels upon the levers *l* l^1. The switch-points may be moved by hand through lever *d*, if desired.

I claim—

1. The combination, with the rock-shaft and switch-points, of safety-levers *l* l^1, at the rear of the switch-points, and a safety-lever, l^2, and an auxiliary lever, *n*, in front of the switch-points, to automatically change the switch-points and retain the train on the main track, substantially as described.

2. The primary lever l^2, connected rock-shaft, and switch-points, in combination with the auxiliary lever, arranged in advance of the point of the switch, and governing mechanism to maintain the auxiliary lever *n* in position next the main track *a*, to operate substantially as described.

3. An auxiliary lever, *n*, for operating the switch-points, adapted to be thrown automatically or otherwise out of and to be automatically brought into operative position, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE H. SOULE.

Witnesses:
CHARLES N. HERSEY,
C. A. WINCHESTER.