C. W. SIMONDS.
Railroad-Switch.

No. 198,054. Patented Dec. 11, 1877.

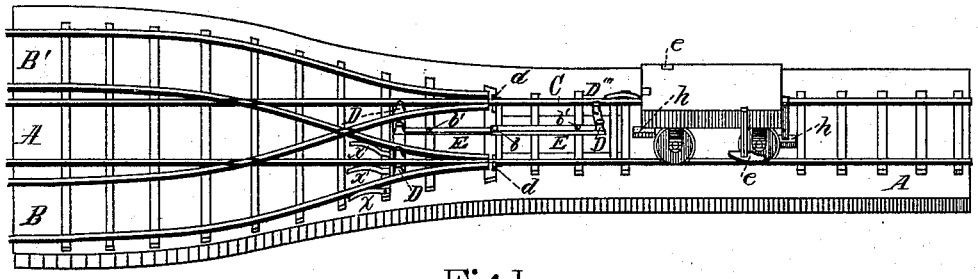

Fig. 1.

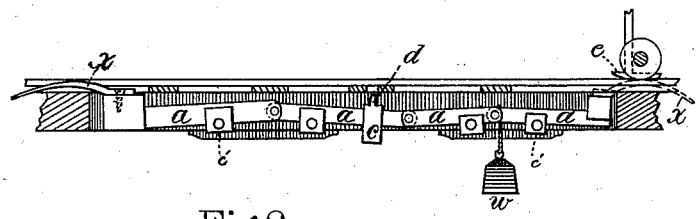

Fig. 2.

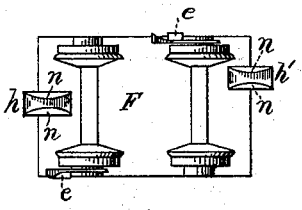

Fig. 5.

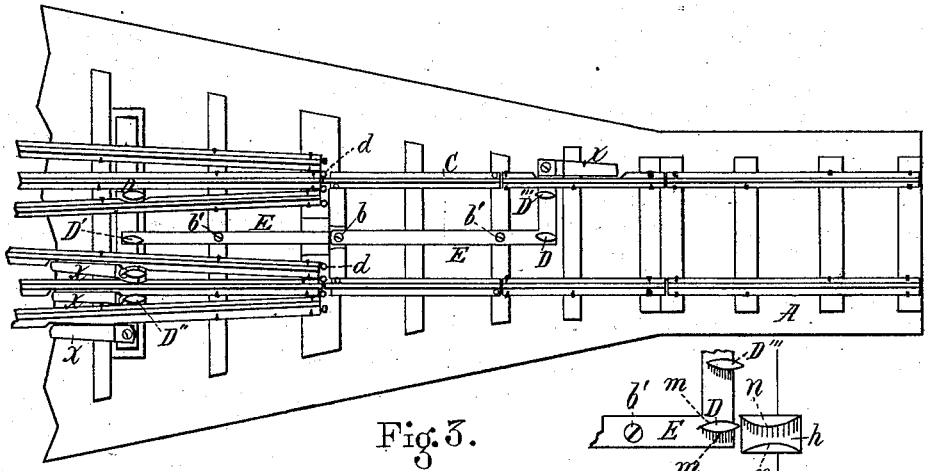

Fig. 3.

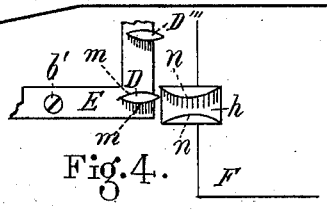

Fig. 4.

Witnesses:
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Per his Atty.
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UNITED STATES PATENT OFFICE.

CALVIN W. SIMONDS, OF NORTH BOSCAWEN, NEW HAMPSHIRE, ASSIGNOR TO CHARLES WILLIAMS AND ALBERT H. RUSSELL, OF SOMERVILLE, MASSACHUSETTS.

IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **198,054**, dated December 11, 1877; application filed February 19, 1877.

To all whom it may concern:

Be it known that I, CALVIN W. SIMONDS, of North Boscawen, in the county of Merrimack and State of New Hampshire, have invented a new and useful Improvement in Automatic Railroad-Switches, of which the following is a full, clear, and exact description, reference being had to the drawings accompanying and forming part of this specification.

This invention relates to a railroad-switch, which is automatically operated by the train; and it consists in certain novel unlocking and shifting devices, constructed and arranged as hereinafter more fully set forth, so that the train, on approaching a siding or branch track, will automatically unlock the switch, and immediately afterward shift the same, so as to establish connection with the siding or branch track, and after having gone onto the siding or branch track will automatically shift the switch into connection with the main line and lock it in that position.

In the accompanying drawings, Figure 1 shows a railroad-line with two sidings, to which my improved switch is applied, and a car provided with the attachments which operate the switch. Fig. 2 is a sectional view of the unlocking device, showing the switch unlocked. Fig. 3 is a view of the shifting device. Fig. 4 is a plan view of a car, showing the devices attached thereto by which the switch is operated, and Fig. 5 is a partial view, showing the manner in which the shoes engage with the projections so as to operate the switches.

In these several figures the same letters refer to the same parts.

Referring to the drawings, A is the main line. B B′ are sidings, and C is the switch, capable of a sidewise movement to either side of the main line.

Two sidings are shown, in order to show the operation of the switch-moving mechanism when a train is going from the main line to a siding, and when a train is moving in the opposite direction from a siding to the main line.

I will first describe the construction and operation of the unlocking device. This consists in a series of levers, *a a a a*, properly supported under the track. At the center of this system of levers is attached a bar, C, upon which are pins or tongues *d d*, which, when the bar is raised up by the action of the weight *w*, rise on each side of each of the rails of the switch and lock it, so that a sidewise movement is prevented. At opposite ends of this system of levers are attached cross-bars *c′ c′*, to which are attached plates *x x*, which lie alongside of the rail in such a position as to be depressed by the projections *e e*, attached to the sides of the car, when these come into contact with the plates. These plates are represented of a curved form, in order that the projections *e e* may easily glide over them.

It will be obvious that when these curved plates are depressed by the action of the projections the bar C and tongues *d d* will be depressed, and the pins removed from the sides of the rail, so that the switch will be free to move, and these plates are such a distance from the shifting devices that the shoes or projections, of the form shown at *e* on the car, will engage with the plates and unlock the switch before the shifting devices are operated by the car.

The unlocking device may be kept in place by a spring instead of a weight, which spring may be arranged in any suitable manner.

The projections or shoes are removable and adjustable, and though, for convenience of illustration, they are represented as both attached to the same car, in practice one shoe will be attached to the engine, and the other to the rear car.

The shifting device is shown in detail in Fig. 4. It consists of two levers, E E, connected together by a hinge at *b*, and secured to the switch at that point, and each pivoted to the sleeper at *b′*, so as to have a transverse motion, and thereby move the switch. Upon the end of each of these levers is a bar, upon which are a series of projections, D D′ D″, having curved sides, as shown in *m* in Fig. 4.

Upon the car, as shown at *h h′* in Fig. 5, are shoes having slots therein, the sides of which are curved, as shown at *n n* in Fig. 5, and when these curved sides strike the curved faces of the projections D, these give a transverse movement to the bar E, and cause the switch to be moved.

The operation of this device is as follows: A shoe, *h*, is placed upon the engine at the center of the frame, as shown at Fig. 5, and

upon the rear car is a shoe, h', as also shown in Fig. 5. When the train approaches the switch, the projection e strikes the curved plate x. By depressing the same, it depresses the pins d d and unlocks the switch, and immediately after the shoe h, by coming into contact with the curved projection D, gives a tranverse movement to the switch, and throws it into connection with the siding, and the projection e is removed from the plate x, and the levers a a being released, the switch is locked. Immediately after the train has passed onto the siding the projection e, by acting with the curved plate x, again unlocks the switch, and the shoe h' on the rear of the car strikes against the projection D′ and throws the switch into connection with the main line, thus leaving the main line closed.

If the train is moving in an opposite direction from the siding to the main line, the movement of the switch to establish connection with the siding will be effected by the engagement of the shoe h with the projection D″, and of the shoe h' with the projection D‴.

The shoes are capable of adjustment on the cars, and thus, after the train has passed from the main line to a siding and then left the main line closed, the projection h' may be shifted, so that, when the train backs, the shoe upon the rear car will strike the projection D′ and move the switch into connection with the siding, and after the train has moved onto the main line the shoe upon the engine will strike the projection D″ and throw the switch into connection with the main line.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The projection upon the shifting mechanism, having curved faces m m, substantially as and for the purpose set forth.

2. The combination of the levers a a a a, bar c, pins d d, curved plates x x, weight w, switch C, and shifting-levers E E, and projections D D′ D″ D‴, substantially as and for the purpose set forth.

3. The pivoted shoes h h', attached to the train and having slots with curved sides n n therein, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand to this specification in presence of two subscribing witnesses.

CALVIN W. SIMONDS.

Witnesses:
ALEX. L. HAYES,
ALBERT L. RUSSELL.