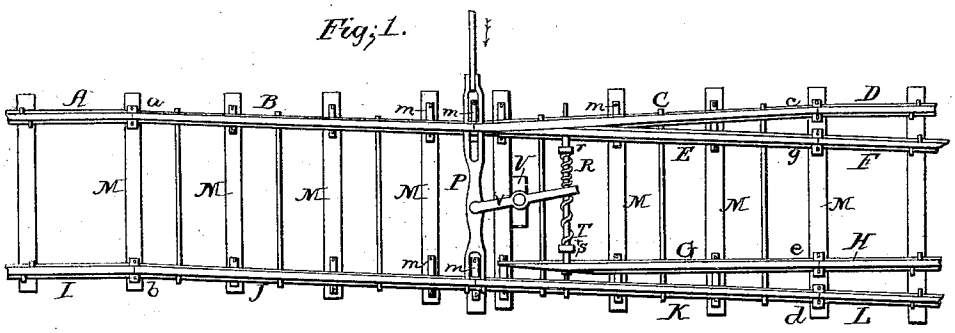
G. E. Beach,

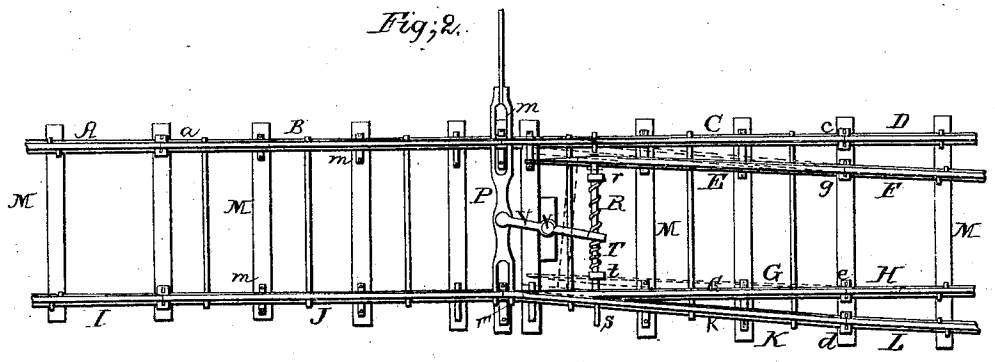
Railroad Switch,

No. 30,116. Patented Sep. 25, 1860.

Fig; 1.



Fig; 2.



Witnesses;

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UNITED STATES PATENT OFFICE.

GEORGE E. BEACH, OF JERSEY CITY, NEW JERSEY.

RAILROAD-SWITCH.

Specification of Letters Patent No. 30,116, dated September 25, 1860.

To all whom it may concern:

Be it known that I, GEORGE E. BEACH, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Railroad-Switches; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 is a plan with the parts adjusted for traveling on the usual or main track. Fig. 2 is a similar view with the parts adjusted for directing the cars upon the other or side track. The dotted lines in Fig. 2 show the position of the parts when in consequence of a car being moved wrongly over the switch, the parts are forced into an unusual position bringing the action of the spring greatly into play, and developing one of the great merits of the invention. The red outline in Fig. 2 shows the position of the wheels of a car when this effect is being produced.

Similar letters of reference indicate like parts in all the figures.

With ordinary switches there is much danger of trains being thrown from the track by the misplacement of a switch. In my improved construction, trains running in either direction cannot be thrown from the track with the switch in either position.

The nature of my invention consists, first, in so hinging and connecting two rails in a continuous series that their positions may be shifted for the purpose of guiding a train upon another track, without breaking their continuity. Second, in the use of a forked or slotted bar in combination with hinged continuous rails and with suitable fixed supports between the parts of the bar and under the ends of the rails. Third, in combination with the hinged continuous rails the employment of tongue rails for directing the car or train upon another track at pleasure. Fourth, in combination with the hinged continuous rail and tongue rails the employment of a spring or springs for the purpose of allowing the tongues to be temporarily pushed aside by a car when wrongly presented thereto, and of returning the tongues into their former position as soon as it has passed.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation by the aid of the drawings.

A, B, E, F, I, J, K, L, are the rails of the regular track, C, D, G, H, are the rails forming the switch or secondary track.

M are the sleepers, *a*, *b*, *c*, *d*, are four double chairs placed in the position indicated, each receiving the ends of the adjacent rails.

B, C, J and K are each formed with heels and are capable of turning to a slight extent in their respective chairs *a*, *b*, *c*, *d*. Between these chairs they rest on bearings on the sleepers. At their inner ends they are fitted in rabbets or recesses in the forked ends of the bar P, as represented. This bar P is attached by the rod *p* to the usual switch lever, and serves to move the rails B, C, J, K, into the two positions shown in the drawings, but in all positions B, C and J, K, form continuous rails. The bar P being forked allows the ends of the rails to lie firmly on a bearing *m*, between the forks. The rails E, and G are "tongues" or wedge like rails, adapted to fit very closely to the inner sides of C and K as represented and are free to turn to a small extent on their respective chairs *e*, *g*. They are connected near their other ends by a rod S which holds the tongues at a fixed distance apart. Between them are placed the spiral springs T, R, resting at their inner ends against a lever V and at their outer ends against adjustable collars *r*, *t*, on the rod S. The lever V, is hung on a fixed pintle or fulcrum *v* and embraces and slides upon the rod S between the springs T and R as represented. The other end of this lever is attached to the bar P and receives motion therefrom.

The operation is as follows: When a train approaching from the left is to continue upon the main track the bar P is moved in the direction of the arrow, carrying with it the rails B, C, and J, K. By this motion the lever V is so operated that the spring R is compressed and T is unstrained, whereby E is pressed toward C until E and C are tightly pressed into contact each with the other as shown in Fig. 1, and a wide space obtains between G and K. The train will under these circumstances be guided upon the rails E, F, and K, L, as is obvious on inspection of Fig. 1. If now it is desired to switch off a train, P is moved in the opposite direction until

E and C are separated and K and G are firmly in contact as shown by strong lines in Fig. 2. In this condition the spring T is tightened and R loosed and the train will be guided upon the rails C, D and G, H. Thus far my improved switch acts the part and serves the same purpose of the ordinary switch but in a different manner. But it possesses an additional and very important quality. The springs R and T are capable of yielding to a much greater extent than is required in the conditions described, and if while the switch is all in the position last described a train either by accident or design comes from the right hand side of the figure on the main track the pressure of the flanges of the wheels upon the rails K and E compresses the spring T more and compels E and G to assume a position in opposition to the action of the springs, allowing the train to pass in the same manner as if the switch was properly adjusted. This action is shown by dotted lines in Fig. 2 where a pair of wheels in this wrong position are shown in red lines. As soon as the train has passed, the spring T again brings the tongues to their proper position. The same thing occurs, if, when the parts are in the position shown in Fig. 1, a train comes off the secondary or switch track, the spring R giving way and allowing it to pass in safety when the tongues are immediately reset as before. Thus it will be seen that in either of the positions shown in the drawings, a train coming from either the main track or the siding will pass the switch with perfect safety.

Having now fully described my invention, what I claim as new therein and desire to secure by Letters Patent is—

1. So hinging and connecting two rails B, C, or J, K, in a continuous series, that their positions may be shifted for the purpose of guiding a train upon another track without breaking their continuity, substantially as herein set forth.

2. The fixed bearings *m m* in combination with the forked bar or rod P and the hinged continuous rails B C and J K substantially as and for the purposes described.

3. In combination with the hinged continuous rail or rails B, C, J, K the employment of the tongue or tongues E, G, operating together substantially as and for the purposes herein described.

4. In combination with the hinged continuous rails B, C, J, K and tongues E, G, the spring or springs R, T, or their equivalents, arranged substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my name in the presence of two subscribing witnesses.

GEORGE E. BEACH.

Witnesses:

THOMAS D. STETSON,

A. SNYDER.