





# UNITED STATES PATENT OFFICE.

JACOB YOUNGMAN, OF SUNBURY, PENNSYLVANIA.

## RAILROAD-SWITCH.

Specification of Letters Patent No. 24,074, dated May 17, 1859.

*To all whom it may concern:*

Be it known that I, JACOB YOUNGMAN, of Sunbury, in the county of Northumberland and State of Pennsylvania, have invented a  
5 new and useful Improvement 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, forming a part of  
10 this specification, in which—

Figure 1, is a plan or top view of a railroad switch constructed with my improvement. Fig. 2, is a vertical transverse section of the same.

15 Similar letters of reference, in each of the several figures indicate corresponding parts.

My invention relates to an improvement in the well known R. R. frog plate which has two spear points and one continuous  
20 guard and is used on each side of the track. This character of frog plate, as is well known, when made stationary, and used in connection with an ordinary pivoted switch, serving to keep the rails of the main track  
25 and siding or turn out closed or connected with the track below, at all times, and in a condition to prevent accidents by running off, there being always an unbroken line of passage for a train to take.

30 The nature of my invention consists, simply, in providing two guards, instead of one, on the inner side of each of the frog plates, when a space exists between the two  
35 frogs at the point where the cars take an oblique direction to the switch rails in order to run upon the lower portion of the main track. The object in thus having a space  
40 between each of the guards is this, when the forward wheels of a car are fully upon the lower rails of the main track, and the rear wheels just at the termination of the spear  
45 points of the frog plates, a lateral or oblique pull is caused on the hind wheels by reason of the rails of the lower portion of the main track being at right angles to the axles  
50 of the car, while the spear pointed rails of the frog plates are slightly oblique to said axles, and consequently they tend to force the hind axle to a position which will cause  
55 it to stand at right angles with the main rails of the lower track and were it not for the spaces allowing the hind wheels to play laterally, a sufficient extent, considerable wear and tear of wheels, axles and frogs, and also danger of running off, in the train passing from the switch rails on to the main

rails of the lower portion of the track, would be experienced; as will be hereinafter made evident.

To enable others, skilled in the art, to  
60 make and use my invention, I will proceed to describe its construction and operation.

As my invention will be just as effective in cases where the frog plates combine the  
65 properties of a frog and switch, as when the frog plates only perform one office, *i. e.* that of a frog, and are used in connection with an ordinary switch, I have shown in the drawing, these two methods of employing it, but to facilitate description, I shall only  
70 refer to my invention as applied to frog plates combining a switch and frog.

C, C, are cast iron frog plates, on each of which are formed the elevated parts 1,  
75 2 and 3, the parts 1 and 2, being spear pointed rails or frogs, and the part 3, in the form of a continuous rail. There are also elevated curved guards 4, 4, formed on the cast iron plates, said guards having a  
80 space 5, existing between them, as shown. The elevated parts 1, 2, 3, serve the purpose of conducting the cars onto the desired track to which they may be set, while the  
85 guards insure the retention of the same on the track, and by their peculiar arrangement and construction, prevent lateral wear and tear on the frogs of the track and also prevent strain on the axles and wear on the wheels of the cars.

Operation: When the cars traveling in  
90 the direction from A, to B, are required to run on the main track D, the elevated parts 2, of the frog plates are set to the rails of that track, and when traveling in the same  
95 direction, it is required to run the cars on to the side track E, the same elevated parts 2 are set to the rails of that (side) track. From the above, it will be evident that in  
100 traveling in an opposite direction from B, to A, no switching will be required, for if the frogs 2 are set to the main track D, that track has a safe connection with the track F, below and the side track is also  
105 connected with the track F, by elevated part or frog 1, on the right hand plate and the continuous rail 3 on the left hand plate, and if frog 2, are set to the side track, the main track has its connection over frog 1, on the  
110 left hand plate, and the continuous rail 3, on the right hand plate. With the switch in either of these positions, cars traveling in the direction from B, to A, either from



the main or side track, can pass to the track F, below without switching.

To use the character of frog above described, is very desirable, but to do so, 5 some inconveniences from lateral wear and strain are experienced, to obviate which I have provided two guards 4, 4, with a space 5, between them, instead of a single continuous guard, so that when the front wheels 10 of each car are fully on the lower rails of the main track, and the hind wheels of the same just on the terminating spear points of the frogs, as shown in red, the hind wheels shall, when lateral or oblique 15 pull is caused on them, by reason of the oblique set of the frogs acting in opposition to the straight set of the rails of the lower portion of the main track, F, be allowed a chance to move laterally in said spaces 5, 20 and thus avoid strain on the axle and wear on the frogs and wheels.

I do not claim guards applied to a railroad switch, irrespective of the arrangement and construction of the same, as they are 25 very common. Nor do I claim broadly providing for the lateral sliding of the wheels of a car when this is accomplished by means of short frogs terminating in a broad, flat surface which elevates the flange to the top 30 of the rail, and serves to prevent impingement, the guards on the opposite side draw-

ing the wheels across the surface of the plate. Because in this latter arrangement, the wheel and plate receive a mutual injury. No plate, even with steel capping will allow 35 the passage of a flange over its surface for any length of time without being guttered, and when once injured in this way inflicts in its turn, an injury upon the wheel by breaking its flange. No such defect exists in my 40 arrangement. The flange of the wheel touches no elevated surface, neither the bottom nor the top of the plate, but all the slipping is done on the broad bottom of the wheel and the top of the frog, as the space 45 between the guard rails allows every chance for slipping, but

What I do claim as my invention and desire to secure by Letters Patent, is—

The arrangement of two guards 4, 4, so 50 that a space 5 exists between them at the point where the cars take an oblique direction to the switch rails in order to run upon the lower portion of the main track, on a frog plate which has stationary frogs 1, 2, 55 and a rail 3, arranged on it, substantially as and for the purposes set forth.

JACOB YOUNGMAN.

Witnesses:

SAML. V. SICKLES,  
THOS. G. COOPER.