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Patented Feb. 26, 1901.

S. A. WORCESTER.  
SWITCH FOR OVERHEAD TRACKS.

(Application filed Nov. 30, 1900.)

(No Model.)

2 Sheets—Sheet 2.

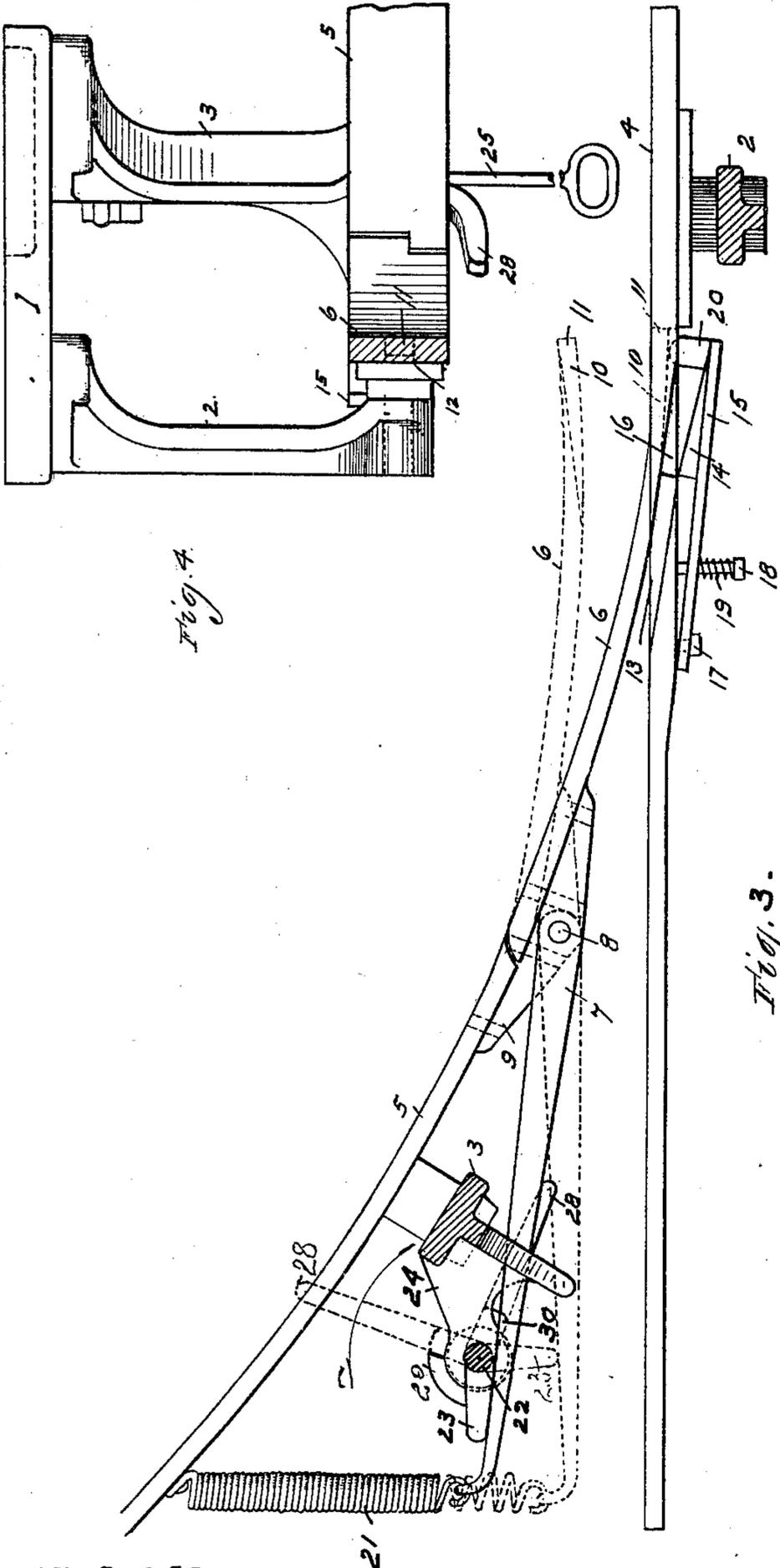


Fig. 4.

Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## SWITCH FOR OVERHEAD TRACKS.

SPECIFICATION forming part of Letters Patent No. 669,039, dated February 26, 1901.

Application filed November 30, 1900. Serial No. 38,159. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL A. WORCESTER, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Switches for Overhead Tracks, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to switches for overhead tracks, and has for its object to provide a spring-switch so constructed as to prevent derailment of a trolley moving from the switch-track toward the main track in case  
15 the switch is left open.

The invention has for a further object to provide means for closing the groove in the main rail through which the flanges of the trolley-wheels pass when the switch is open  
20 and for opening said groove when the switch is closed.

To these and other ends my invention consists in certain novel features, which I will now proceed to describe and will then particularly point out in the claims.  
25

In the accompanying drawings, Figure 1 is plan view of an apparatus embodying my invention in one form. Fig. 2 is a side elevation of the same. Fig. 3 is a plan section  
30 taken on the line  $x x$  of Fig. 2, and Fig. 4 is an end elevation.

In the said drawings, 1 indicates a suitable base-plate or support, to which are secured the downwardly-extending hangers 2 and 3,  
35 by means of which the main track 4 and switch-track 5 are respectively supported.

6 indicates the switch-rail, which is secured at one of its ends to one end of a lever 7, pivoted at 8 to a support 9, secured to the end of  
40 the switch-track 5. The free end of the switch-rail 6 is cut away above and below its central portion, as indicated at 10, so as to form a tongue 11, and the adjacent part of the main rail is provided with a correspond-  
45 ing aperture 12, into which the tongue 11 is adapted to project when the switch is closed. Immediately adjacent to the point of contact of the switch-rail with the main rail this latter is provided with a diagonal groove 13 to  
50 permit the passage of the flanges of the trolley-wheels from that side of the rail farthest

from the switch to the side adjacent thereto when the switch is closed. In order to prevent the said flanges from engaging this groove and derailing the trolley when the  
55 switch is open, I provide a closing-block 14 of a wedge or triangular shape, which block is adapted when moved laterally toward the rail to close the end of the groove 13 and prevent the trolley-wheel flanges from entering  
60 the same. This block is carried by a lever 15, to the free end of which said block is attached, and in order to bring the lever low enough to cause the flanges of the wheels to clear the same the block 15 is made of con-  
65 siderable depth, and the groove 13 is recessed or cut away at its forward end, as indicated at 16, to accommodate the increased depth of the block. The end of the lever 15 opposite to that to which the block 14 is attached is  
70 loosely connected to the main track or any other suitable support by means of any suitable flexible or hinged joint—as, for instance, by the bolt or pin 17 passing loosely through an aperture in the end of the lever and being  
75 secured to the main track. The lever 15 is acted upon by a spring which tends to throw its free end forward of the main track, and in the present instance I have shown a construction for this purpose comprising a bolt or  
80 pin 18, passing loosely through the lever into the rail and having coiled around it a spring 19, which bears against the head of the bolt or pin and the lever. At its free end the lever 15 is provided with a lug or projection 20,  
85 which is adapted to enter the aperture 12 in the main rail opposite the tongue 11 on the switch-rail, so that when the switch is closed the lever and its filling-block will be thrown out of position, as indicated in full lines in  
90 Fig. 3, while when the switch is open the lever and its block will be forced inward against the rail by the spring 19, so as to bring the block 14 in position to close the end of the groove 13. By this means the groove is au-  
95 tomatically closed when the switch is open and automatically opened when the switch is closed. Moreover, when the switch is closed the block 15 acts as a guard-rail to guide the wheels on that side into the groove 13.

The lever 7, to which the switch-rail 6 is attached, has connected to its other end a spring

21, which tends to hold the switch-rail 6 normally in the closed position, (shown in full lines,) it being understood, however, that the switch is free to open by reason of the yielding of the spring 21 to permit the passage of trolleys traveling in a direction from left to right. In order to positively operate the switch, I provide a vertical shaft 22, mounted in brackets 24, extending horizontally outward from the hanger 3. This shaft may be rotated by any suitable means, and in the present instance I have shown a depending rod 25, by means of which the shaft may be operated from a point immediately below it, and also a crank-arm 26, secured to the upper end of the shaft and adapted to have connected to it a connection 27, such as a rod or the like, by means of which the shaft may be operated from a distance. The shaft 22 is provided with a cam-arm 23, which in the normal position of the parts (indicated in full lines in Fig. 3 of the drawings) rests against the side of the lever 7. It will be observed that when the shaft 22 is rotated in the direction indicated by the arrow in Fig. 3 the cam-arm will bear against the said lever and will swing the same outward into the position shown in dotted lines, thereby opening the switch, and the switch will remain open until the shaft is again positively operated, owing to the fact that the cam-arm is in a position at right angles to the lever 7. In order to provide against the accidental derailment of a trolley by reason of the switch being left open, I provide on the lower end of the shaft 22 a trip-arm 28, which when the switch is open extends outward under the switch-track 5 in the manner indicated in dotted lines in Fig. 3, in which position it lies in the track of the carriers. It will be seen that if the switch is open and a carrier approaches the switch along the switch-track it will strike the projecting trip-lever 28 and will move the same over far enough to cause the shaft 22 to rotate to an extent sufficient to bring the cam-arm 23 at such an angle to the lever 7 that the pull of the spring 21 will cause the cam-arm to slip upon the lever, and thereby permit the spring to close the switch. By this means it will be seen that a trolley or carrier approaching the main track from the switch-track will automatically close the switch in case the same has been accidentally left open and will thus be prevented from running off at the end of the switch-rail.

In order to insure a proper location of the trip-lever relatively to the switch-track when the switch is open, I provide upon one of the brackets 24, preferably the lower one, a stop 29, and I provide upon the shaft 22 a corresponding stop-arm 30, so that when the shaft 22 is ready to open the switch the stop-arm 30 will come into contact with the stop 29, thereby insuring the stoppage of the parts in such a position that the trip-lever 28 will lie in the path of the carriers traveling along the switch-track 5.

I do not wish to be understood as limiting myself to the precise details hereinbefore described, and shown in the drawings, as it is obvious that these details may be modified without departing from the principle of my invention.

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

1. A switch for overhead tracks comprising a main track, a switch-track, a spring-controlled switch-rail, means for positively actuating the switch-rail, and a tripping device located adjacent to the switch-track and adapted to be engaged by a carrier or trolley traveling thereon to release the switch-rail and permit the spring to close the switch, substantially as described.

2. A switch for overhead tracks comprising a main track, a switch-track, a spring-controlled switch-rail, and an operating-shaft provided with operating means and having a cam-arm to positively operate the switch-rail, and a trip-arm extending into the path of the carriers traversing the switch-track when the switch is open and adapted, when engaged by a carrier, to trip the cam-arm and permit the spring to close the switch, substantially as described.

3. A switch for overhead tracks comprising a main track, a switch-track, a switch-rail, a lever connected at one end to the switch-rail and having a spring connected to its other end, a rock-shaft provided with a cam-arm bearing against said lever and adapted to operate and lock the same, means for positively actuating said rock-shaft, and a trip-arm connected with said rock-shaft and extending into the path of the carriers on the switch-track when the switch is open and adapted, when engaged by such carriers, to trip the cam-arm and permit the spring to close the switch, substantially as described.

4. The combination, with the main and switch tracks and switch-rail, of a spring-controlled lever carrying the switch-rail, a rock-shaft provided with a cam-arm bearing on the lever and adapted to positively operate and lock the same, said rock-shaft being also provided with a trip-arm extending into the path of the carriers on the switch-track when the switch is open, and stops to limit the movement of said parts, substantially as described.

5. In a switch for overhead tracks, the combination, with a main rail having a diagonal groove for the passage of the wheel-flanges, of a spring-controlled filling-block movable toward and from said groove and extending into the same when the switch is open, and a switch-rail adapted to displace said block and open the groove when the switch is closed, substantially as described.

6. A switch for overhead tracks comprising a main rail having a transverse groove for the passage of the wheel-flanges, a spring-controlled lever provided with a filling-block normally entering said groove, and a switch-

rail adapted to engage said lever and dis-  
place the same, and the block to open the  
groove when the switch is closed, substan-  
tially as described.

5 7. A switch for overhead tracks comprising  
a main rail provided with a transverse groove  
for the passage of the wheel-flanges and having  
a transverse aperture, a spring-controlled le-  
ver provided with a filling-block normally en-  
10 tering said groove and having a projection  
adapted to enter the aperture in the main rail,  
and a switch-rail having a tongue or projection

also adapted to enter said aperture and, by  
its engagement with the projection on the  
filling-block lever, laterally displace said 15  
lever and block when the switch is closed,  
substantially as described.

In testimony whereof I affix my signature  
in presence of two witnesses.

SAMUEL A. WORCESTER.

Witnesses:

WILLIAM O'LAUGHLIN,  
F. W. SCHAEFER.