

No. 654,327.

Patented July 24, 1900.

T. S. SAVAGE.  
AUTOMATIC SWITCH.  
(Application filed Apr. 19, 1900.)

(No Model.)

Fig. 1.

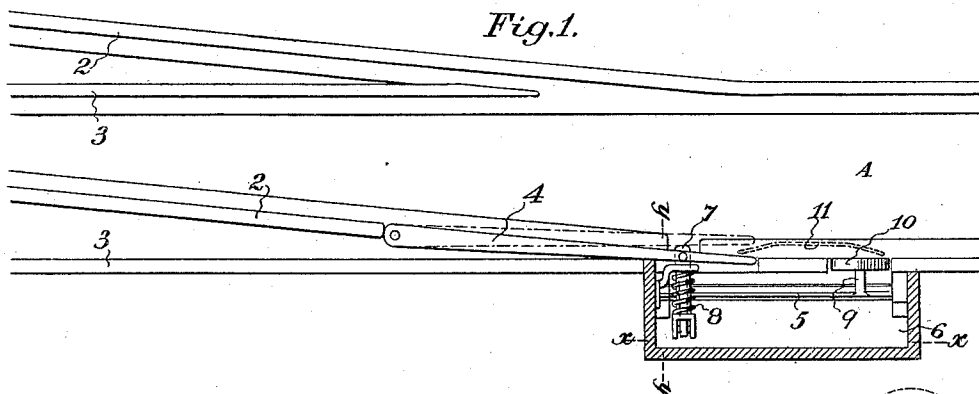


Fig. 3.

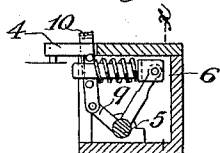


Fig. 2.

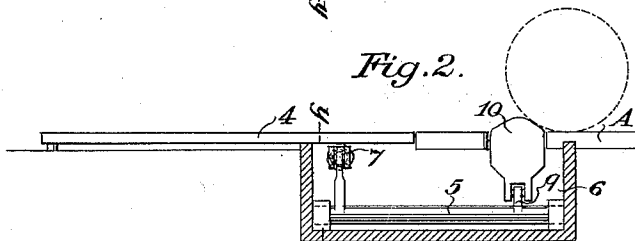


Fig. 4.

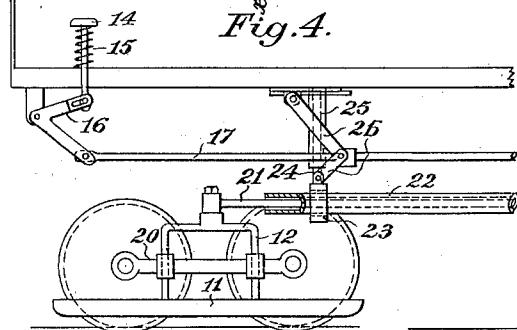


Fig. 6.

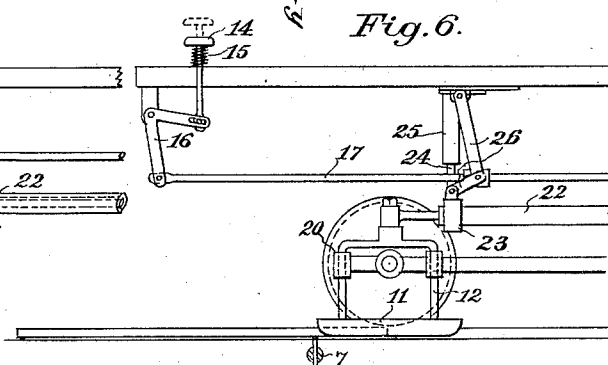


Fig. 5.

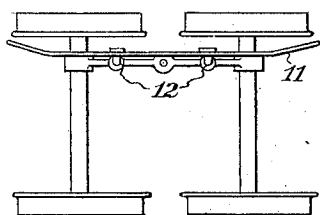
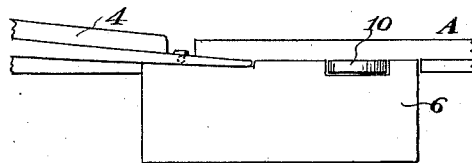


Fig. 7.



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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 654,327, dated July 24, 1900.

Application filed April 19, 1900. Serial No. 13,438. (No model.)

*To all whom it may concern:*

Be it known that I, THEODORE SCOTT SAVAGE, a citizen of the United States, residing in Oakland, county of Alameda, State of California, have invented an Improvement in Automatic Switches; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a means for automatically transferring cars from one line of track to the other at the will of the motorman or other person in charge.

It consists in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a plan view of my device. Fig. 2 is a longitudinal section on the line  $xx$  of Fig. 1. Fig. 3 is a transverse section on the line  $yy$  of Figs. 1 and 2. Fig. 4 is a part longitudinal elevation of a four-wheeled truck, showing the mechanism for operating the switch. Fig. 5 is a plan. Fig. 6 is a part elevation of a single-wheel truck. Fig. 7 is a plan showing the cover for the box 6.

The object of my invention is to provide a means by which the motorman or other operator upon a car or like traveling vehicle can determine the direction in which the car should travel upon arriving at a switch where two tracks diverge from each other.

As shown in the drawings, A is the main line of track over which the car may be approaching.

2 is one of the lines of track diverging from the main line, and 3 represents the other. At the junction of these two lines is a spring rail or point 4, pivoted in line with the tracks 2 and normally retained in line with the main track A, so that a car approaching on the main line will be diverged by it upon the track 2. When it is desired to pass the car over the track 3, it is done by throwing this point outwardly, so as to allow the car-wheels to travel on the inside of the switch-point and be directed upon the track 3, which is essentially in line with the main track. This is effected by means of a rock-shaft 5, suitably journaled below the track and preferably within a containing recess or box, as at 6. This rock-shaft has one arm connected with a horizontally-slidable bar 7, one end of which is connected with the lower part of the switch-

point 4, and this bar has a spring 8 of sufficient strength to retract it and the switch-point and retain the latter in its normal position, as before described. Upon the other end of the rock-shaft is a rocker-arm 9, and this is actuated by a presser plate or bar 10, which connects with it and which has an upwardly-projecting edge in the line of the passing wheels on the main track and at a short distance away from the switch-point. When the car approaches from the main line, it strikes this upwardly-projecting edge and depresses it, thus acting upon the rock-shaft and the connected rocker-arms and forces the switch-point away from its contact with the main-line rail; but as soon as the wheel has passed the elasticity of the spring returns the parts to their normal position, so that if no other force is brought into operation the point will simply spring away as the wheel passes over and immediately return, so that the wheels and car will pass upon the line of track 2. No matter how rapidly the car may pass over this apparatus the switch-point will return to its position after the passage of each wheel, and the car or train will be directed upon the track 2.

If it be desired to direct the car upon the track 3, it is effected by means of plates 11, which are carried upon vertically guided and movable arms or yokes 12, and these are moved by levers, which are connected together, and with an operating-footpiece 14, located within convenient reach of the motorman or other operator, as various mechanical devices may be employed for making the proper connection. As here shown, the footpiece 14 is normally held up by a spring 15. Its lower end connects with a bell-crank or equivalent lever 16, and this is connected with a rod 17, suitably guided and extending beneath the car and having connection with the yokes or carriers 12, by which the plates 11 are moved. The operation will then be as follows: When the car approaches the switch-point, the operator places his foot upon the depression-pedal 14, and through this forces the plates 11 down, so that they stand by the inner side of the track. These plates are located in such proximity with the wheels of the car that when the latter pass over the pressure-plate 10, which throws the switch-

point outwardly from the line of the main track, these plates immediately enter the space between the switch-point and the main track, and thus prevent its returning after  
 5 being relieved from the pressure of the wheels. The switch-point being thus held away, the car-wheels will pass onto the track 3, and each pair of wheels of the car as it arrives will in the same manner be diverted  
 10 upon this track. I have here shown two mechanical devices for producing this operation. In one the device is designed for use where a single pair of wheels supports each end of the car. In the other the ends of the  
 15 car are supported upon four-wheeled trucks. In this case and in order to allow the truck to swing in turning corners without deranging this apparatus the yokes 12 are slidable vertically through guides on the truck-frame,  
 20 as shown at 20, and the upper ends of the yokes are connected by a rod 21 and a tube 22, within which the rod is slidable, these extending from one yoke to the other and allowing of any longitudinal adjustment which  
 25 may be required by the varying positions of the trucks. The tubular portion 22 passes through a transversely-slotted bar 23. This bar has rods 24 extending upwardly from it and slidable in tubular guides 25, so that the  
 30 whole device may be raised and lowered in unison with the movements of the plates 11. In order to operate the device, the rod 17, previously described, connects with the meeting  
 35 upper ends of joints of the knee-levers 26. The upper members of these knee-levers are fulcrumed to the body of the car or other suitable support, and the lower members have their lower ends fulcrumed to the transverse  
 40 slotted bars 23, and the angle of the junction of the levers 26 and their connection with the rod 17 is sufficiently out of a vertical line to allow the necessary vertical movement of the parts connected therewith when they are  
 45 brought into an approximately-straight line by the operation of the foot-pedal 14 and its connected parts, as previously described.

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

50 1. The combination in a railway having a main line and branch track, of a spring-pressed switch-point normally closed to cause cars to move upon one line of track, a rock-shaft, arms carried thereby, one of which is  
 55 connected with the switch-point and the other with a pressure-plate which projects into the path of the car-wheels so as to be depressed thereby, and to throw the switch-point away from its contact with the track, and a spring  
 60 by which said point is returned after the wheels have passed the pressure-plate.

2. The combination of a spring-pressed switch-point by which cars are diverted from the main line upon a divergent track, the  
 65 rock-shaft having one arm connected with the switch-point, a pressure-plate in the path of

the car-wheels connected with the other arm whereby the switch-point is thrown away from its normal position by the passage of  
 70 car-wheels, and plates carried by the car, and means for depressing them so as to pass inside the switch-point, and prevent its returning whereby the cars are diverted upon the other line of track.

3. An automatic switching device consisting of a spring-pressed switch-point at the  
 75 junction of two lines of track with the main line, a pressure-plate in the path of car-wheels approaching on the main line, a rock-shaft and connections actuated thereby by which  
 80 the switch-point is moved away from its normal position, plates supported and vertically movable upon the car, a foot-pedal and connections intermediate between said pedal and the plates whereby they may be depressed to  
 85 pass inside the switch-point after it has been moved away from its contact, and to retain it in such position while the car-wheels pass upon the other line of track.

4. An automatic switching device consisting of a spring-pressed switch-point, normally  
 90 maintaining one of two meeting lines of track in connection with the main line, a pressure-plate in the main line, intermediate connections between it and the switch-point where-  
 95 by the latter is momentarily forced away from its position by each wheel passing over it, plates supported and guided upon the car, and a foot-pedal with intermediate connections whereby the plates may be depressed  
 100 to engage the switch-point after it has been forced away and retain it in this position until the car-wheels pass upon the other lines of track.

5. In an automatic car-switching device, 105 and in combination with the four-wheeled turnable trucks upon which the car is mounted, vertically-movable yokes or carriers, and guides therefor, plates fixed to the lower ends of said carriers and adapted to pass between  
 110 the switch-point and its normal point of contact, adjustable connections between the yokes at opposite ends of the car, transversely-slotted bars in which said connections are carried and by which the trucks are allowed  
 115 to turn independently thereof, vertical slidable guides connected with the transverse bars, toggle-levers pivoted together and having the upper and lower ends connected respectively with the car and with the bars, a  
 120 rod connecting the meeting joints of said levers, a foot-pedal and connections between said pedal and the rod whereby the latter may be reciprocated and the plates raised or depressed.

In witness whereof I have hereunto set my hand.

THEODORE SCOTT SAVAGE.

Witnesses:

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 ANDREW EDWARD JOHNSTONE.