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PATENTED FEB. 6, 1906.

L. R. PARSONS.
RAILWAY SWITCH.
APPLICATION FILED JULY 27, 1905.

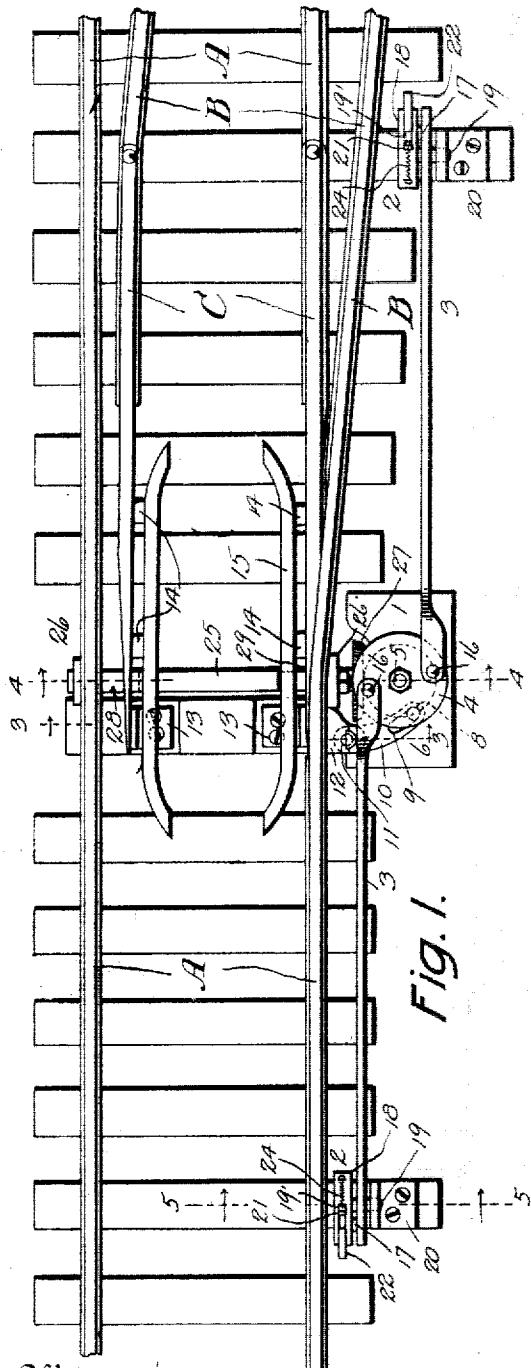


Fig. 1.

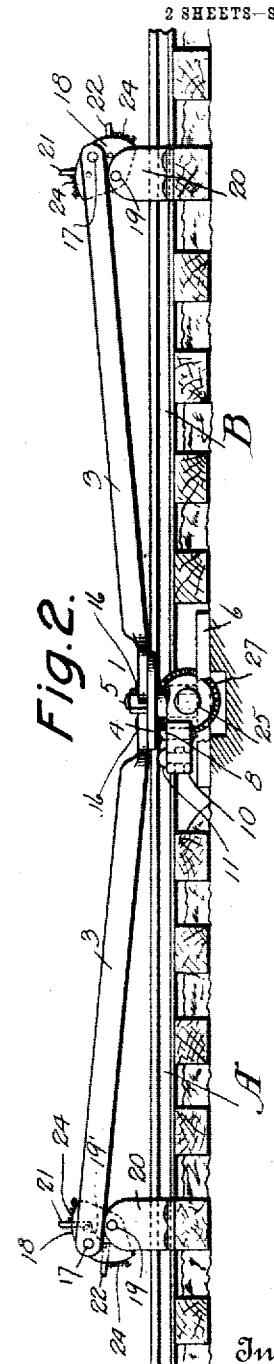


Fig. 2.

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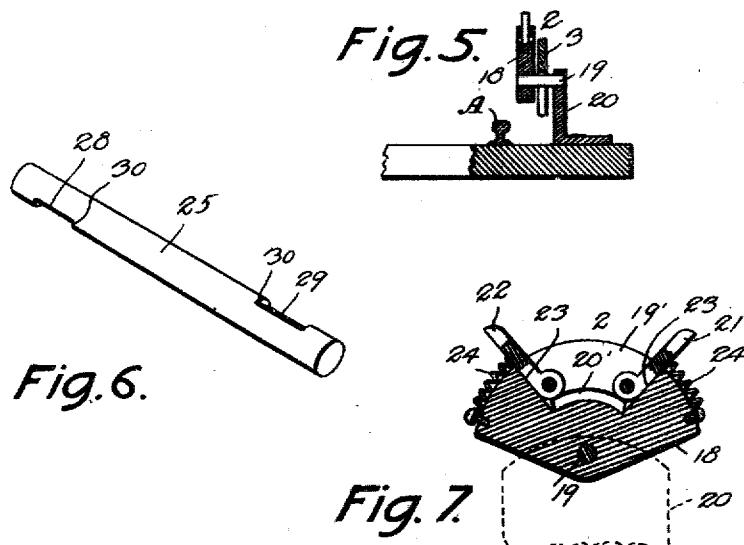
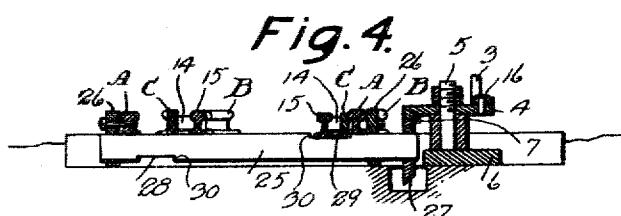
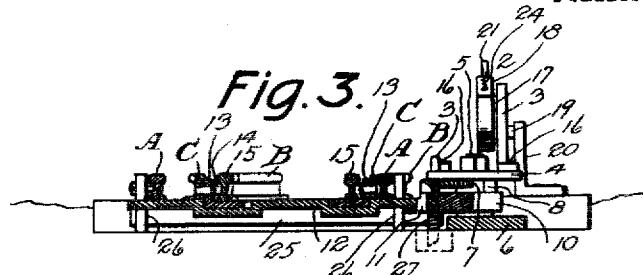
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

LOUIS R. PARSONS, OF STRONGHURST, ILLINOIS.

RAILWAY-SWITCH.

No. 811,738.

Specification of Letters Patent.

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To all whom it may concern:
Be it known that I, LOUIS R. PARSONS, a citizen of the United States, residing at Stronghurst, in the county of Henderson and State of Illinois, have invented certain new and useful Improvements in Railway-Switches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in automatic railway-switches; and it consists in the novel construction, combination, and arrangement of devices hereinafter described and claimed.

One object of the invention is to provide a simple, durable, and efficient mechanism by means of which the switch-points may be thrown or operated from either end of a moving train.

Another object of the invention is to provide a simple and efficient means for automatically locking the switch-points in either opened or closed position.

A further object of the invention is to improve and simplify the construction and operation of mechanisms of this character, and thereby render the same more efficient and durable in use.

The above and other objects, which will appear as the nature of the invention is better understood, are accomplished by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a portion of a main-line track and its siding with my improved mechanism for operating the switch-points. Fig. 2 is a side elevation of the same, the parts of the operating mechanism being in the positions shown in Fig. 1. Figs. 3 and 4 are vertical transverse sectional views taken, respectively, on the lines 3 3 and 4 4 in Fig. 1. Fig. 5 is a detail vertical transverse sectional view taken on the line 5 5 in Fig. 1. Fig. 6 is a detail perspective view of the locking-shaft, and Fig. 7 is a sectional view through one of the operating devices that are actuated by levers or other means upon the train.

Referring more particularly to the drawings, A denotes a main-line track. B denotes a siding leading from the main track, and C denotes a pair of movable switch-points, which are actuated by my improved mechanism 1. This mechanism comprises

one or more rotary or oscillatory devices 2, which are arranged adjacent to the tracks upon one or both ends of the switch and which are actuated by levers or other suitable devices carried by the trains passing over the tracks. These devices 2 actuate by means of connecting-bars or links 3 a rotary disk or wheel 4, which is mounted upon one side of the track adjacent to the switch-point 65 and which is operatively connected to the latter. As shown in the drawings, the rotary wheel or element 4 is in the form of a beveled gear, which is mounted upon a vertically-disposed pivot 5, provided on a bearing-bracket 6, which is secured upon one of the cross-ties. The cog-teeth 7 upon the under side of this gear or wheel 4 extend but part of the way around its periphery for a purpose presently explained, and upon its under side is a depending crank-pin 8, which projects loosely through a slot 9, formed in one end of a link 10, which has its opposite end pivotally connected, as at 11, to the outer end of a bar 12, which connects the movable switch-points C. As shown in Fig. 4 of the drawings, said bar 12 is connected to the switch-point by brackets 13, and to said points are also secured, as shown at 14, guard-rails 15. The links or rods 3 each have their inner ends pivoted, as shown at 16, upon pivots arranged upon the upper face of the wheel or element 4 at diametrically opposite points, as clearly shown in Fig. 1 of the drawings, and the outer ends of said rods 3 are pivotally connected, as shown at 17, to the rotary or oscillatory devices 2. The latter, as shown in the drawings, are in the form of disks or blocks 18, which are pivoted, as shown at 19, upon brackets 20, provided upon the cross-ties adjacent to the track-rails. These disks or blocks 18 have their upper edges or peripheries curved substantially concentric with the pivots 17 and formed with V-shaped or segmental-shaped recesses 19, as clearly shown in Fig. 5 of the drawings. Said recesses have outlet-openings 20' at their inner ends to permit water, dirt, or other foreign matter to pass out of the same. In recesses or openings 19' of each of the disks 18 are pivotally mounted two trip-levers 21 22, which are adapted to swing inwardly into or partially into the recesses 19' and are held normally in radially-projecting positions against the ends 23 of said recesses 19' by springs 24, which are here shown in the form of coils having one end connected to one of the levers

and the other end to studs upon said disks 18. The trip-levers 21 22 are so mounted that they project almost at angles of forty-five degrees with respect to each other, so that the 5 movement of the disks 18, and hence of the disk or wheel 4, is practically a quarter of a revolution. The said levers 21 22 may be of any desired form and may project outwardly to a greater or less extent, according to the 10 construction of the lever or other operating device which is to operate them and which is carried by the engine, the caboose, or other cars of a train. Owing to the manner in which the disks 18 are mounted and the manner 15 in which the trip-levers are mounted upon said disks, it will be seen that one or the other of said levers of each device will be at all times in a vertical position, so as to be in the path of the lever or operating device upon 20 the train when said lever or operating device is projected by the engineer or other train-operator.

In order to lock the switch-points C in either their open or closed position, I provide 25 beneath the track-rails and adjacent to the points of the switch a locking-shaft 25. This shaft is journaled in bearing-brackets 26, secured to the track-rails, as shown, or upon the cross-ties, and has secured upon one of its 30 ends a beveled gear or pinion 27, which is adapted to mesh with the cog-teeth 7 upon the gear or wheel 4. The locking-shaft 25 at points adjacent to the switch-points C is notched or recessed, as shown at 28 29, so 35 that when the shaft is turned to bring either of said notches or recesses beneath the switch-points and their guard-rails the latter will be held therein by shoulders 30, formed at the inner ends of said notches by those portions 40 of the shaft which have not been cut away, as will be readily seen upon reference to Fig. 3 of the drawings. The notches or recesses 28 29 are disposed at diametrically opposite points, so that when one is turned to engage 45 one point of the switch or to permit the latter to drop into it the other notch or recess will be upon the under side of the shaft, and when neither of said recesses are in operative position the switch-point may slide freely in 50 either direction upon the top of said shaft. By forming the opening 9 in the link 10 in the form of a longitudinally-extending slot the crank-pin 8 is permitted to move therein before actuating said link, the bar 12, and the 55 switch-points C, so that when either of the devices 2 is actuated the locking-shaft 25 will be first actuated by the movement of the wheel 4, so as to unlock the switch-point, and the link 10 and bar 11 will then be operated 60 to shift said points, as will be readily understood.

The operation of the mechanism is as follows: When the main-line track is closed, as 65 shown in Fig. 1 of the drawings, and a train coming in the direction of the arrow in said

figure desires to pass onto the siding B the engineer upon the train projects his lever or operating device to cause it to engage the trip-lever 21 of the device 2 upon the near side of the switch. As the engine passes, this 70 device and its disk 18 will be oscillated in a forward direction, owing to the engagement of said trip-lever 20 with the end of the slot or recess 19, and the link or rod 3 will move the gear or wheel 4 a quarter of a revolution. 75 The gear 4 first actuates the shaft 25 to unlock the switch-points and then shifts them through the connection of the link 10 and the switch and bar 12. As the lever 21 is moved forwardly and downwardly the lever 20 is 80 brought to a vertical position, and the reverse occurs with respect to the levers of the device 2 at the far end of the switch. In other words, the lever 20 of the device at the far end of the switch is brought to a vertical 85 position, so that it may be actuated by the lever or operating device upon the caboose or rear car of the train. It will be seen that should the lever or operating device upon the caboose of the rear car of the train be projected before said caboose or car passes the lever 22 upon the device 2 at the near side of the switch the said lever 22 will swing forwardly and downwardly into the recess 19 in its disk 18 as the car-lever passes over it and 90 will be instantly returned to its vertical position by the action of its coiled spring. 95

It will be seen that by means of this mechanism the switch-point may be operated from either end of the train when the latter is 100 passing in either direction—that is, coming in or going out of the switch, backing train in, or heading in—so that it automatically locks itself in both its open and closed position.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation. 105

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention. 110

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

1. The combination with a main track and a siding, of a movable switch-point, a crank disk or element, operative connections between the crank of said disk and said point, an oscillatory device, a connection between said device and said disk, trip-levers upon said oscillatory device, means for limiting the 120 swinging movement of said levers, and means for holding said levers normally in a projected position. 125

2. The combination with a main track and a siding, of a movable switch-point, a crank 130

disk or element, operative connections between the crank of said disk and said point, an oscillatory disk formed with a segmental-shaped recess, radially-projecting trip-levers 5 pivoted in said recess and adapted to swing inwardly into the same, and springs for retaining said trip-levers in engagement with the ends of said recess.

3. The combination with a main-line track 10 and a siding, of movable switch-points, a bar connecting said points, a crank-disk, a link connecting said bar and the crank of said disk, oscillatory disks mounted adjacent to said tracks and formed with segmental-shaped recesses, cranks connecting said oscillatory disks and said crank-disk, levers pivoted in the recesses in said oscillatory disks, and springs for holding said levers in engagement with the ends of said disks, substantially as 15 described.

4. The combination with a main-line track 20 and a siding, of movable switch-points, a shaft journaled beneath same and formed at diametrically opposite points with notches to receive said points, a beveled gear, a beveled pinion upon said shaft and in mesh with said 25

gear, and oscillatory devices mounted adjacent to said tracks, and links connecting said devices and said gear, substantially as described. 30

5. The combination with a main-line track and a siding, of movable switch-points, a bar connecting said points, a locking-shaft journaled beneath said points and having notches to receive the latter, a beveled gear, a beveled pinion upon said shaft in mesh with said gear, a crank-pin upon said gear, a link pivoted to said bar and formed with a slot to receive said crank-pin, oscillatory disks mounted adjacent to said tracks and formed with recesses, links connecting said disks and said gearing, levers pivotally mounted in the recesses in said disks, and springs for holding said levers in engagement with the ends of said recesses, substantially as described. 35 40 45

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

LOUIS R. PARSONS.

Witnesses:

J. C. PARSONS,
T. J. ROBERTS.