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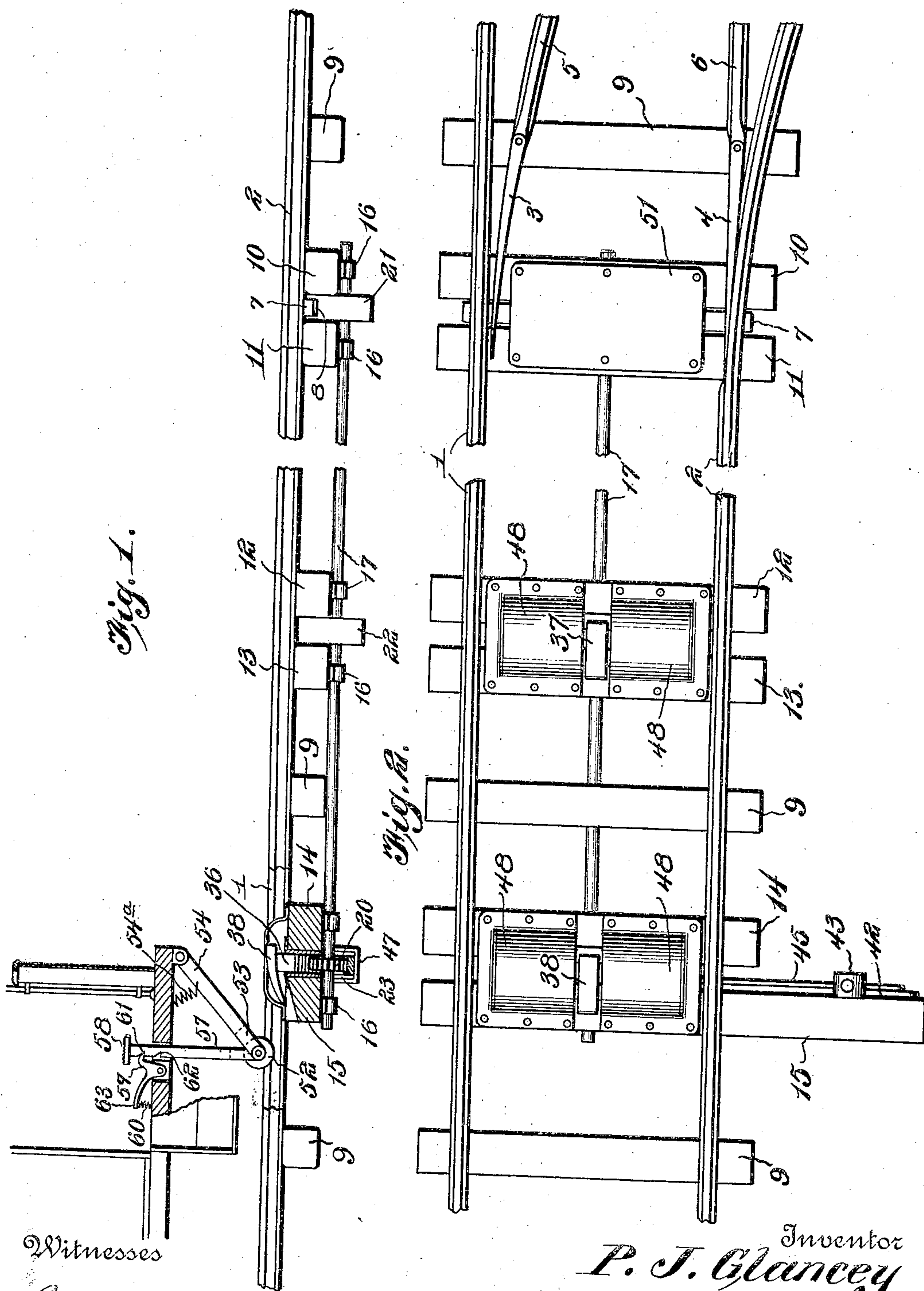
P. J. GLANCEY.

PATENTED JULY 28, 1908.

RAILWAY SWITCH OPERATING MECHANISM.

APPLICATION FILED NOV. 14, 1907.

2 SHEETS—SHEET 1.



Witnesses

Louis R. Heinrichs  
C. H. Griesbauer.

Inventor  
*P. J. Glancey*  
By *A. B. Wilson & Co.*  
Attorneys

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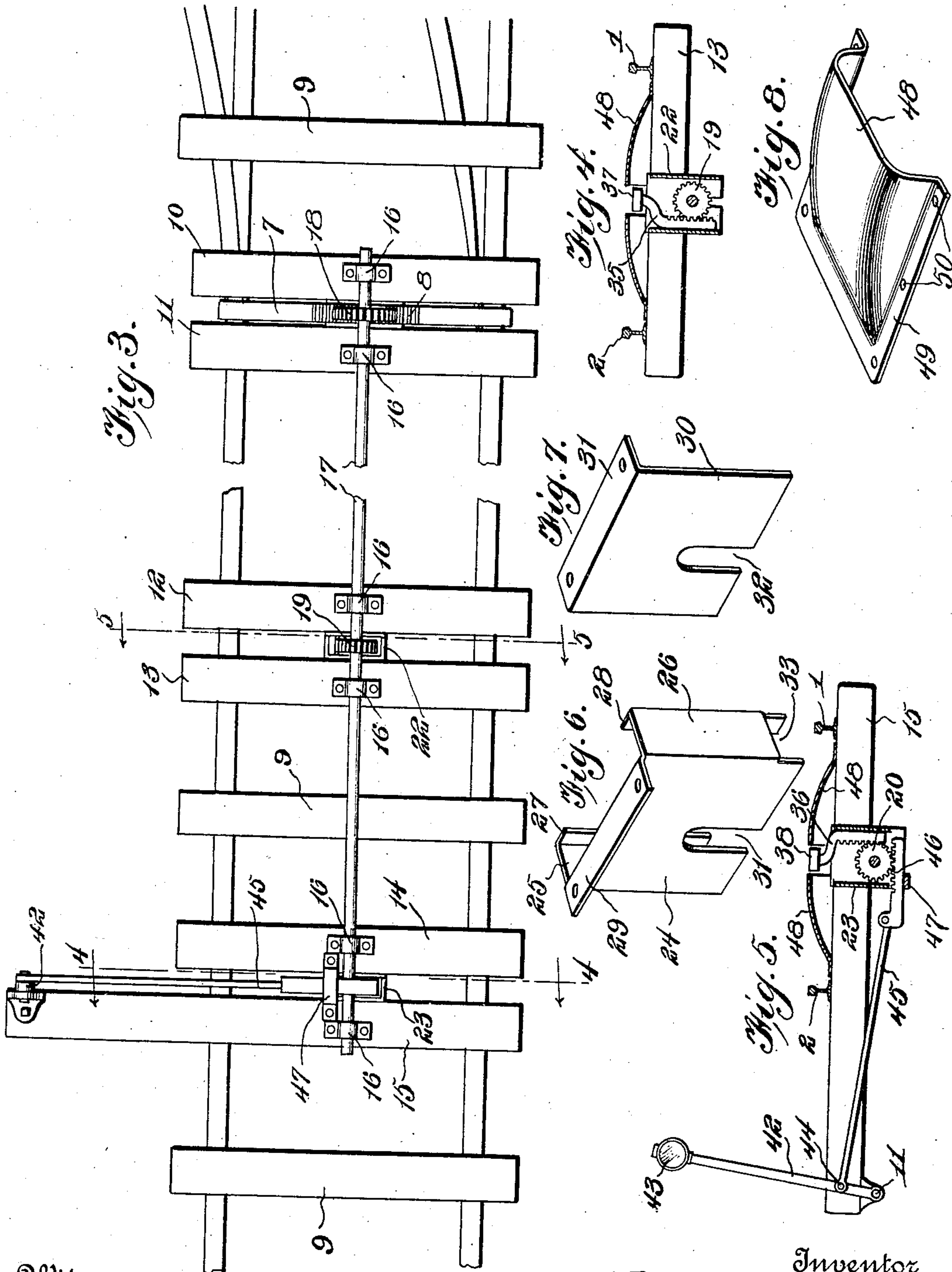
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# UNITED STATES PATENT OFFICE.

PATRICK J. GLANCEY, OF SCRANTON, PENNSYLVANIA.

## RAILWAY-SWITCH-OPERATING MECHANISM.

No. 894,320.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed November 14, 1907. Serial No. 402,174.

*To all whom it may concern:*

Be it known that I, PATRICK J. GLANCEY, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Switch-Operating Mechanism; 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.

This invention relates to rail road switches and has for its object to provide a mechanism whereby the switch may be operated by an approaching train or car, thus obviating the necessity of the trains stopping or of any person leaving the car, to be exposed to the weather.

Another object is to provide a mechanism of this kind which is positive and efficient in action, which can be easily and cheaply constructed and which is not likely to get out of order, but may be easily repaired.

Herein, I have shown a preferred embodiment of my invention, and while I have described minute details, I do not limit myself to them, as the details, sizes, and proportions shown are merely illustrative and may be varied without departing from the spirit and scope of the invention.

In the drawings: Figure 1 is a side view of my device applied to a railroad switch with a car thereon about to operate the same. Fig. 2 is a top plan view. Fig. 3 is a bottom plan view. Fig. 4 is a sectional view on the line 5—5 of Fig. 3. Fig. 5 is a section on the line 4—4 of Fig. 3. Fig. 6 is a perspective view of one of the gear cases with the key-plate removed; Fig. 7 is a perspective view of one of the key-plates; and Fig. 8 is a perspective view of one of the operating-shoe guards.

My device is illustrated in connection with a railroad switch comprising stock rails, 1 and 2, the movable rails or points, 3 and 4, having some form of pivotal connection with the fixed rails 5 and 6, and connected by a tie plate 7, provided on its lower side with rack teeth 8. The rails are supported by cross ties 9, the ties 10 and 11, 12 and 13, 14 and 15, being in pairs, as shown, forming a space therebetween for a purpose, to be explained. At the bottom of each tie of each of these pairs is an inverted U-shaped bearing box 16 in which is rotatively mounted a

gear wheels, 18, 19 and 20, each one lying between a pair of ties, 10, 11; 12, 13, and 14, 15, the wheel 18 engaging the rack teeth 8 of the tie plate 7. These are shown with wheel 18 a little larger than the other two, but it is obvious that they may be made of any convenient relative proportion. Placed between each of said pairs of ties and over said gears are gear cases 21, 22, and 23.

The gear case 23 is illustrated by Fig. 6 and consists of a slightly resilient metal plate forming a broad side 24 and short sides 25 and 26. The sides 25 and 26 are provided with inwardly extending flanges 27, 28, the broad side 24 being provided at its upper edge with an outwardly extending flange 29. Between the sides 25, 26, just inside the flanges 27, 28 is fitted a tapering key-plate 30, having an outwardly extending flange 31. The flanges 27 and 31 are adapted to rest on the tops of their adjacent ties and may be nailed or otherwise fastened in place if desired. The broad side 24 and the key-plate 30 are provided with downwardly extending slots 31, 32, adapted to receive the shaft 17.

The gear cases 21 and 22 are similar to the case 23 except that the short sides 25 and 26 of the gear case 23 are provided with downwardly opening slots for a purpose which will be explained; and the distance between the side 25 and the slots 31 and 32 is greater than the distance between said slots and the side 26, while the reverse is true as to the gear case 22, the sides being equidistant in the gear case 21. The sides 25 and 26 of gear case 21 are provided with upwardly opening slots, for the reception of the tie rod 7. However, if desired, this case 21 may be dispensed with.

Vertically slidable against the more distant short side of the gear case 22 and 23 and in engagement with the teeth of the gear wheels 19 and 20 respectively, are supporting rack bars 35, 36 carrying inclined contact shoes 37, 38. These rack bars 35, 36 are bent inwardly to bring the contact shoes directly over the axis of the shaft 17, so that they will lie both in the central line of the track and be operated by one roller, as will be explained, or they may be left straight up so that the shoes will not be both in the central line of the track, in which latter case two rollers could be used.

The cross-tie 15 may be extended laterally of the track and have pivoted at its outer end, as at 41, a lever 42 bearing a signal 43.



Pivoted to the lever 42, as at 44 is a connecting bar 45, provided on its open face near its inner end with rack teeth 46. This bar slides between the slots 33, 34 and is held against downward displacement by U-shaped hangers 47 having their ends bolted or otherwise fastened to the bottom of the ties 15, 16.

On each side of the shoes 37, 38 are sloping shoe guards 48 having flanges 49 which may be perforated, as at 50, in order that the guards may be spiked down if desired. These guards are brought up to a slightly greater height than the operating shoes and are effective in preventing the switch from being operated by wagons, or the like, crossing the track. These shoes also serve to cover the gear cases to keep out dirt and the like. The gear case 21 may be covered over with a metal plate 51, if desired.

After the track has been laid and all the movable parts are in place, the gear plates are slipped in place, dirt or ballast is packed therearound and the key-plate is wedged in place forcing the short sides of the case outwardly to hold the case tightly in place. When it is desired to remove the case, the key-plate is removed allowing the sides of the case to move inwardly to loosen the case in place that it may be withdrawn.

Fig. 1 shows my device about to be operated or tripped by a car. However I do not limit myself to the operating means shown, this being merely illustrative, as other means may be used, or said means may be attached to a locomotive or to any species of rolling stock device.

As shown the switch tripping means consist of roller 52 journaled in the bifurcated ends 53 of a lever 54, pivoted to the bracket below the car floor. A bifurcated thrust-bar 57 has the roller 52 also journaled thereon and extends upwardly slidably through the floor of the car and terminates in a roughened enlargement 58 so that a person can lower the roller by pressing on said enlargement with his foot. Pivoted near said thrust-bar is a pawl 59 held by the spring 60 in one of the notches 61 and 62. The pawl 59 receives any jar caused by sudden contact of the roller with the inclined shoe, which jar would otherwise be received by the foot of the person lowering the roller. A lever 63 is provided by which the thrust-bar may be released in order that the roller 52 may be drawn upwardly out of the way by the spring 64. When it is desired to operate the switch, the enlargement 58 is pressed down, thereby causing the roller 52 to bear against one or the other of the shoes 17, 18 as the car passes. This movement of the shoe against the vertically moving rear bar causes the rack bar to engage the one of the gear wheels 19 or 20 rotating the shaft 17 thereby moving the tie plate, which in turn moves the points of the movable rails to one side or the other to oper-

ate the switch. At the same time, by means of the connecting bar 45 the signal 43 is moved to one side or the other to show the position of the switch. The switch does not have to be set when the car is moving toward it from the opposite direction, as is well known.

If preferred, the shoe 38 may be higher than the shoe, 37, so that the thrust-bar may be set to notch 62, thereby to cause the roller to trip only the shoe 38. If the thrust-bar is set to notch 61 both shoes will be tripped but as the tripping of shoe 37 reverses the position of the switch as given by the tripping of shoe 38, it is clear that the switch may be thrown either way accordingly as the thrust bar is set to notch 61 or notch 62. If the roller 52 is brought between the shoes before it is lowered only the last shoe will be tripped or the first shoe may be tripped and the roller raised without tripping the other rolls.

If desired, two separate independently operated rollers may be provided side by side and the shoes placed out of line with each other. In this case the one shoe or the other could be tripped according to which roller was lowered.

It is thought that the operation of my device will be readily understood without a more extended description.

Having described my invention, what I claim is:

1. In a device of the class described, a supporting structure and connecting mechanism, a protecting case for said mechanism, consisting of a three sided case the two opposite sides having inwardly turned flanges and a key plate adapted to pass between said opposite sides.

2. In a device of the class described, a switch having movable rail points, a tie plate connecting said rail points and provided on its lower side with rack teeth, a shaft extending longitudinally of the track and between the rails thereof, a gear wheel on said shaft to mesh with the rack teeth of said tie plate, and additional gear wheels on said shaft and spaced apart longitudinally of the track, said gear wheels engaging substantially vertically movable rack bars having shoes at the upper end thereof, a rack bar slidably supported under one of said additional gears, a signal, operative connection between said rack bar and said signal, and means carried by a vehicle adapted to press said shoes.

3. In a device of the class described, a switch having movable rails, a tie plate to connect said rails and provided with a rack on the underside thereof, a shaft extending longitudinally of the track and between the rails thereof, gear wheels on said shaft, one of said gear wheels having operative connection with the rack of said tie plate, the other of said gear wheels engaging substantially vertically moving rack bars having shoes at the

upper end thereof, a protecting case for said gear wheels consisting of a three-sided case, the two opposite sides having inwardly turned flanges and key plates adapted to pass  
5 between said sides, a signal operatively connected with one of said gears, and means carried by a vehicle adapted to contact one or the other of said shoes.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 10

PATRICK J. GLANCEY.

Witnesses:

S. D. ROBERTS,  
CHAS. I. KERN.