

No. 894,397.

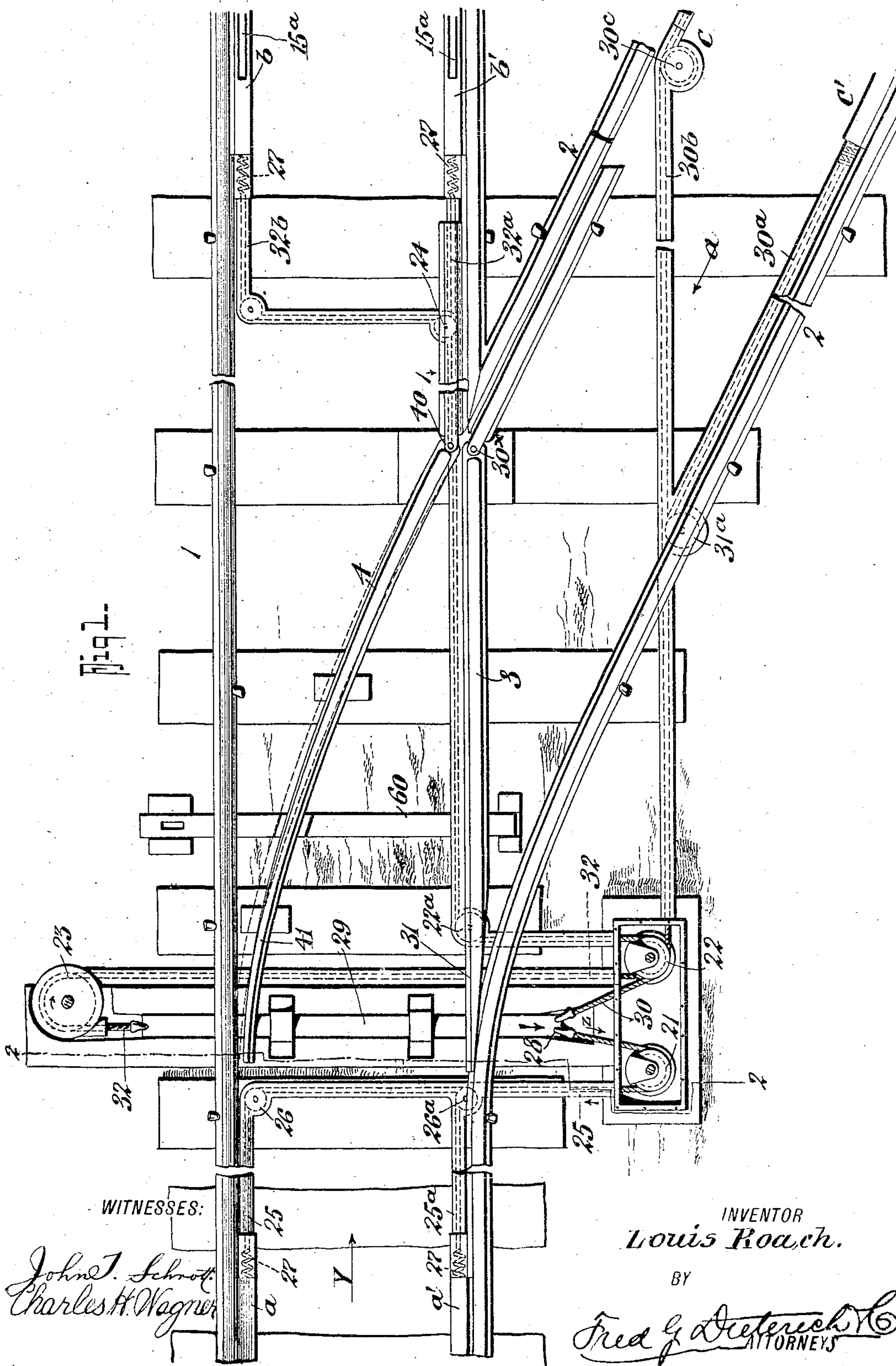
PATENTED JULY 28, 1908.

L. ROACH.

RAILWAY SWITCH MECHANISM.

APPLICATION FILED DEC. 11, 1907.

2 SHEETS—SHEET 1.



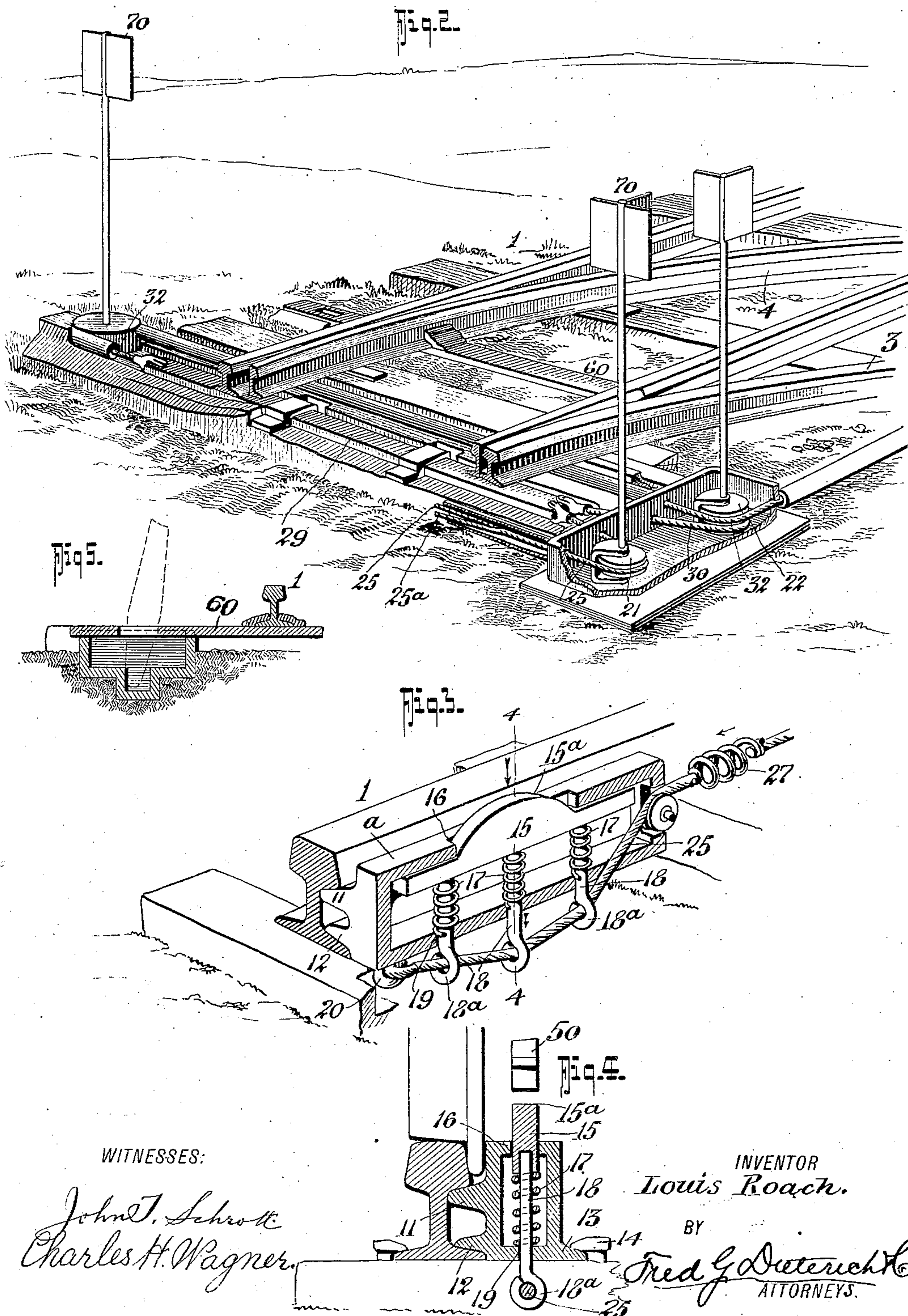
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RAILWAY SWITCH MECHANISM.

No. 894,397.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed December 11, 1907. Serial No. 406,083.

To all whom it may concern:

Be it known that I, LOUIS ROACH, residing at Clifton, in the county of Graham and Territory of Arizona, have invented a new and Improved Railway Switch Mechanism, of which the following is a specification.

This invention relates to improvements in that type of railway switch mechanisms in which the switch members are thrown through the medium of tripper or presser devices mounted on the engine, that serve to set the switches to a closed or open position as the adjustments may make necessary.

My invention primarily seeks to provide an improved switch mechanism of the general character stated of a very simple and economical construction in which the several parts are coöperatively designed and arranged to act positively and with but the engagement of a tripping member on the car with a series of throwing devices that tend to shift the switch members to their different positions, automatic means being combined with the throwing devices for holding the said devices to the adjusted position.

In its more subordinate features, my invention consists in certain details of construction and novel arrangement of parts, all of which will be hereinafter fully explained, specifically pointed out in the appended claims, and illustrated in the accompanying drawings, in which,—

Figure 1, is a plan view of my improved switch mechanism the switch members being set to provide a clear straightway or main line track. Fig. 2 is a perspective view thereof parts being in cross section taken substantially on the line 2—2 on Fig. 1. Fig. 3, is a longitudinal section partly in perspective of one of the switch throwing mechanisms. Fig. 4, is a cross section thereof on the line 4—4 on Fig. 3 and Fig. 5, is a detail view illustrating a simple way for shifting the manually actuated supplemental switch throwing bar.

Referring now to the accompanying drawings, in which like numerals designate like parts in all of the figures, 1 designates the main line tracks and 2 the siding tracks and 3 and 4 designate the switch rails or tongues, one end of each of which is pivotally secured as at 30^x—40 respectively, their free ends 31—41 being held to be swung laterally by the throwing means, presently explained, to make a clear way for the main track, as

shown in Fig. 1, or for bringing the siding rails on line with the side track, the switch rail member 3 being so positioned relatively to the siding and main track to form a main line rail section that closes the gap at the junction of the main and siding lines, as shown.

Mounted adjacent the main rails and at each side of the siding connection, and at suitable points, are two pairs of switch devices, designated respectively *a—b* and *a'—b'*, a third pair of such devices designated *c—c'* being mounted at a suitable point adjacent the siding rails near the switch end as clearly shown in Fig. 1.

All of the switch throwing devices are constructed alike and each consists of an elongated rectangular casing having a laterally projected flange 11 that abuts the underside of the inner portion of the tread face of the rail, see Fig. 4 and a lateral flange 12 at one side that projects over the base of the rail, and a lateral flange 13 on the outside adapted to receive the heading ends of the spike 14 that secures the casing in proper position on the ties, said casing being of a length to straddle the adjacent edges of a pair of ties, as shown.

All of the casings have a plunger 15 that works vertically therein, and each of which has a rounded head 15^a that extends up through a slot 16 in the casing top and so disposed as to be engaged by a depressing or trip member *x* that is pendently secured to the engine or car, the purpose of which is to depress the plunger, which movement acts to throw or set the switch mechanism as will presently be more fully explained.

Each plunger 15 is normally held to its upper or projected position by a series of buffer springs 17—17 within the casing, and said plungers have a series of pendent rods 18 that pass through the springs 17, and through apertures 19 in the casing bottom, their lower ends terminating in eyes 18^a—18^a, the purpose of which will presently appear, and each of the said casings is also provided with a fixedly held pendent eye 20 located at the outer end, as best shown in Fig. 3.

21—22 designate a pair of horizontal guide pulleys located at one side of the switch section of the rails and 23 designates a single guide roller located on the opposite sides of the rails and midway the pulleys 21 and 22.

25—25^a designate a pair of wire cables

that are secured at one end to the pendent fixedly held eyes 20 of the switch throwing devices $a-a'$, and which have yielding or tension portions in the nature of stout coiled springs 27, the purpose of which will presently appear.

The cables 25—25^a respectively pass over guide pulleys 26—26^a and are spliced into one cable after passing beyond pulley 26^a, and the single strand or spliced end then passing over the guide pulley 21, from whence it extends inwardly and connects with the adjacent end of a switch throw bar 29 as clearly shown in Figs. 1 and 2 of the drawing.

32 designates another cable that is connected to the opposite end of the throw bar 29 passes over the guide pulleys 22 and 23 and is separated to form two strands 30^a—30^b that pass over a guide pulley 31^a from whence one of the strands 30^a passes to the switch throwing devices c' and the other 30^b passes over another guide pulley 30^c and thence to the switch throwing device c in practice constructed like the devices shown in Fig. 3, and which together with devices c' is diagrammatically located on Fig. 1 of the drawing, and adapted to be operated when the train passes from the siding onto the main track, so as to pull upon the throw bar 29 to close the switch rail 4 against the main rail while moving the switch rail 3 away from the main rail.

The pulley 22 as will be seen from Fig. 2, is a double grooved pulley so as to accommodate another switch throwing cable 30, that operates for throwing the switch tongues to close the switch with the main line for the siding and for effecting such purpose the cable 30 is secured at that end of the throw bar 29 adjacent the guide pulley 22 over which the cable 30 passes and from which it extends in a suitable guide to a pulley 22^a, over which it passes, and thence extends parallel with the main rails, and is spliced to form two cable strands 32^a—32^b both of which are guided by a pulley 24, one of which connects with the switch actuating devices b' and the other with the actuating device b .

All of the pull cables have the stout coil spring members 27 here before referred to, and the several coil members 27 in practice have such relative tension that when shifted to either direction the switch rails will be held to their adjustments.

By reason of the peculiar construction and combination of parts shown and described, it will be apparent that should the train be moving in the direction of the arrow Y or from the opposite direction and the switch rails positioned as shown it will have a clear main line.

Should the switch rails be to a closed position to bring the main track in line with the siding (which is done by setting the switch

manually through the supplemental throw bar 60), see dotted lines Fig. 5, by bringing the tripper 50 on the engine in position to engage the plunger 15 in either of the devices $a-a'$ it would draw on cables 25—25^a and pull the throw bar 29 in the direction of the arrow and shift the switch rail to the position shown in Fig. 1.

Should the switch rails be closed, and the train pass onto the siding a tripper on the last car or caboose by engaging with either of the devices $c-c'$ will effect the cable 30 and pull the throw bar back to open switch and make the main line clear.

Should the switch rails be over to the position shown in dotted lines on Fig. 1 and a train come from the direction indicated by the arrow a the tripper on the engine engaging either of the devices $c-c'$ will actuate the bar 29 to bring switch tongue 3 over to close the gap in the main track.

The springs 27 also serve to take up the shock in throwing the switch rails.

The several guide pulleys 21—22 and 23 have vertically extended shafts that rotate with the pulleys, and which carry semaphore or other signaling means 70 as clearly shown in Fig. 1 to indicate the set of the switch mechanism.

I desire it understood that instead of using the lever device shown in dotted lines in Fig. 5, that a stand pipe with suitably arranged cable connected with the switch 4, disposed in proper proximity to the track so the rope may be pulled by the engineer or fireman from the cab for actuating the switch member 4, may be used.

What I claim is:—

1. In a railway switch, the combination with the main rails and the switch rails, of cables connected with the switch rails from opposite sides of the track, and means located on the main track in advance of and beyond the switch rails and similar means on the siding in advance of for effecting a pull strain on said cables, said means including members adapted to be depressed by a passing car, for the purposes specified.

2. In a railway switch mechanism, the combination with the main and siding track rails and the switch rails; of a mechanism for shifting the said switch rails in which is included a throwing bar connected to the said switch rails, pull cables and guides therefor, the cables being connected to the throw bar, and means combined with each pull cable for drawing on the cables, each of the said cables having a fixed connection at one end, said means comprising a bar adapted to be depressed by a passing car and having portions engaging the cable near its fixed connection, and springs for returning the said bar to its normal position.

3. In a railway switch, the combination with the shiftable switch rails, and the side

rails; of a pair of guide pulleys at one side of the switch rails, a single guide pulley on the other side of the said switch rails, pairs of switch throwing devices located on the main track, one pair being in advance of and the other beyond the switch rail another pair being located on the siding track, cable connections that form a part of the several

throwing devices and which join with all of the said devices and with the switch rails for the purposes described.

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Witnesses:

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