

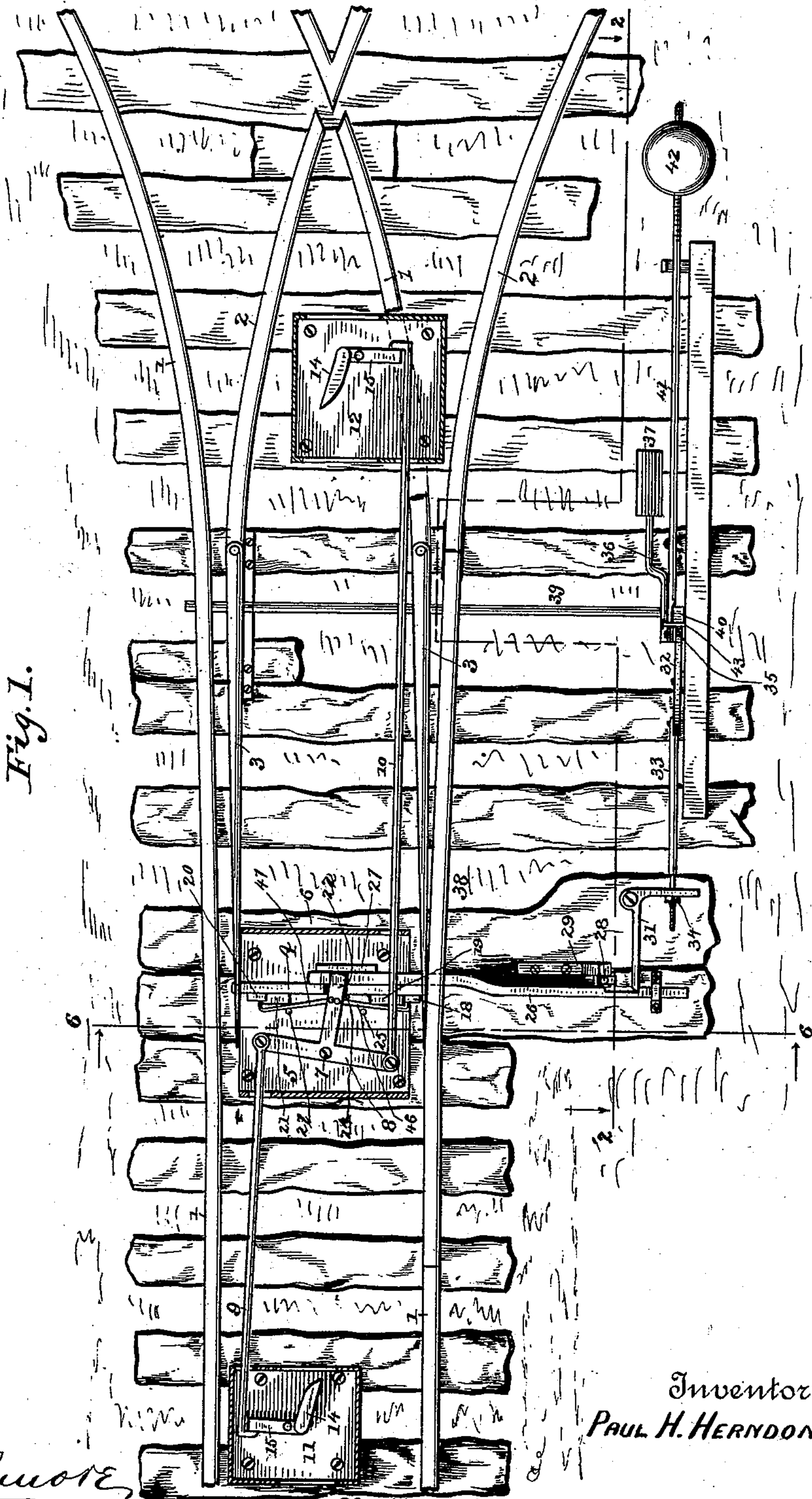
(No Model.)

3 Sheets—Sheet 1.

P. H. HERNDON.
AUTOMATIC RAILWAY SWITCH.

No. 464,071.

Patented Dec. 1, 1891.



Witnesses

H. W. Elmore

Geo W Mitchell

Inventor
PAUL H. HERNDON.

By *his* Attorney

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(No Model.)

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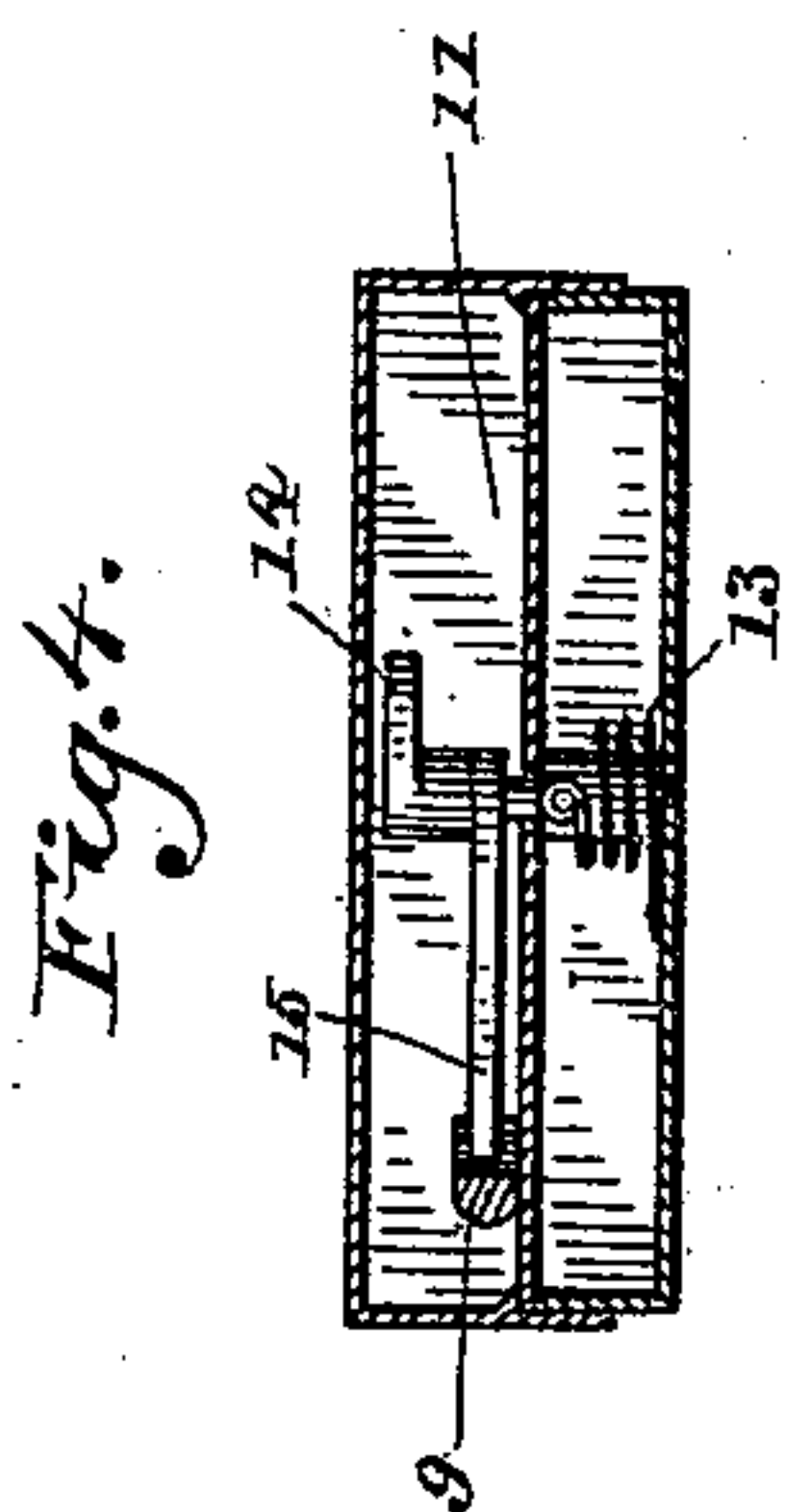


Fig. 2.

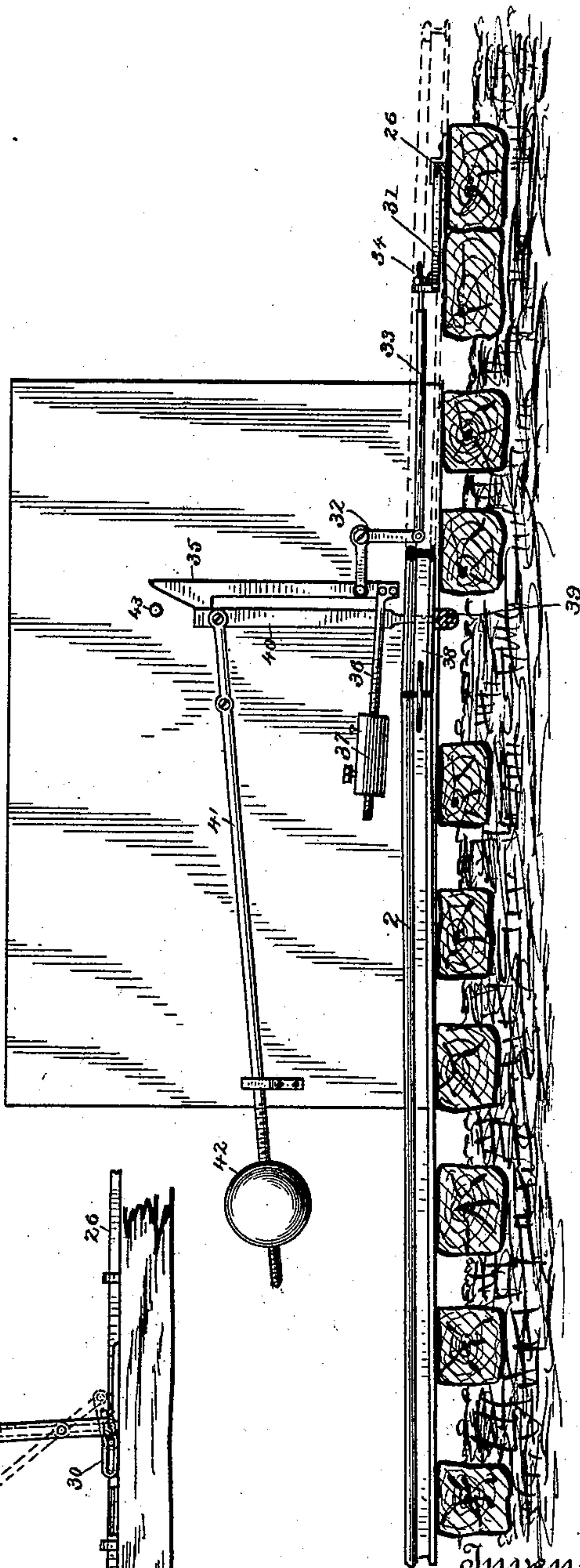
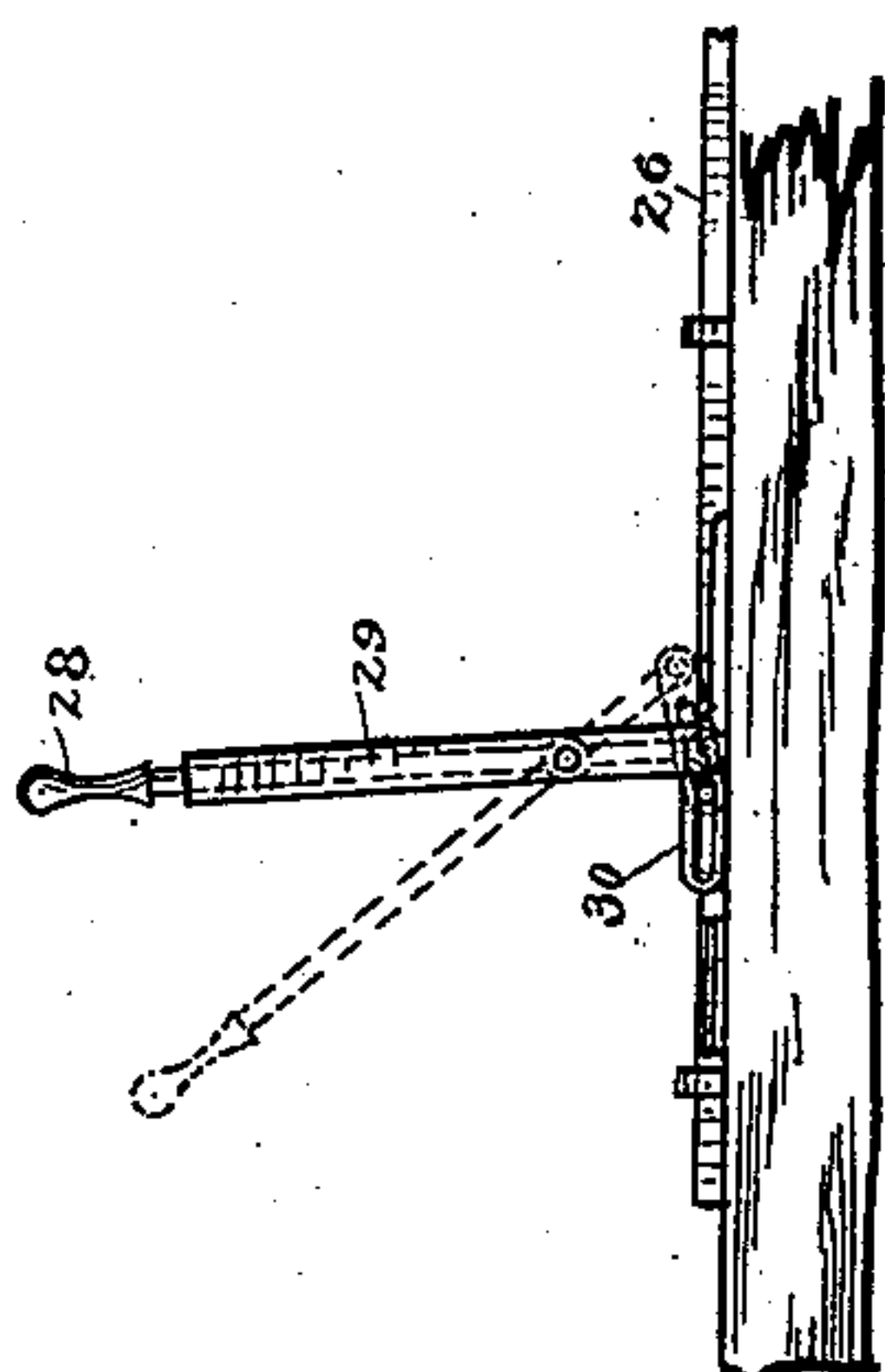


Fig. 3.



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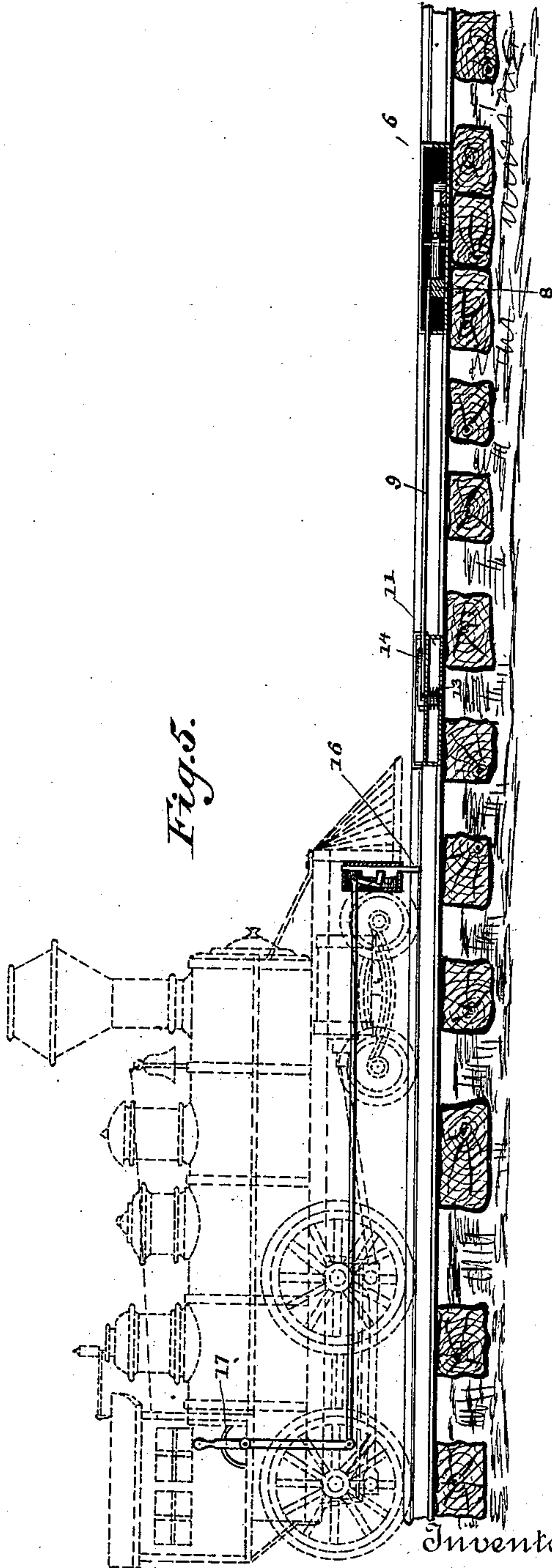
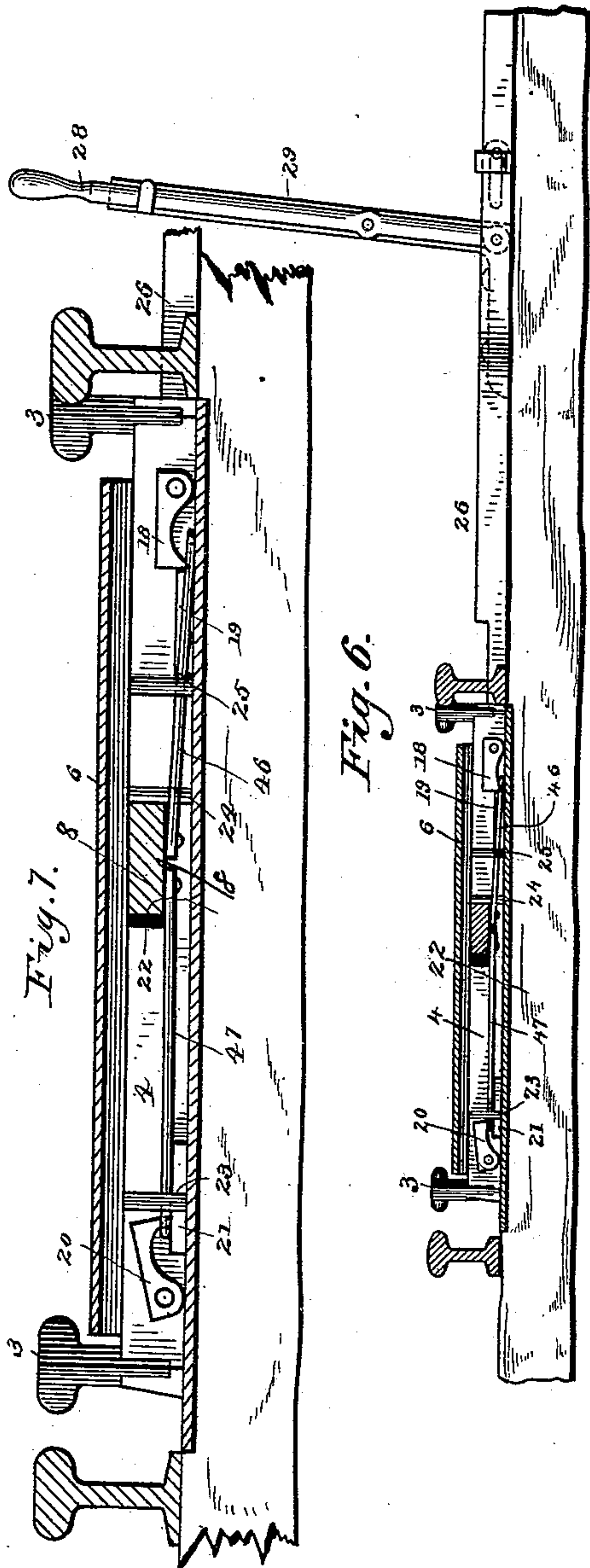
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UNITED STATES PATENT OFFICE.

PAUL HOLDER HERNDON, OF LEESBURG, FLORIDA, ASSIGNOR OF ONE-THIRD TO EDWARD H. MOTE, OF SAME PLACE.

AUTOMATIC RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 464,071, dated December 1, 1891.

Application filed December 23, 1887. Serial No. 258,812. (No model.)

To all whom it may concern:

Be it known that I, PAUL HOLDER HERNDON, a citizen of the United States, residing at Leesburg, in the county of Lake and State of Florida, have invented certain new and useful Improvements in Automatic Railway-Switches; and I do hereby 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 certain new and useful improvements in automatic railway-switches; and its object is to furnish means for shifting the switch-rails operated from the engine-cab or other convenient part of the moving train, the arrangement of parts being such that after the passage of the train upon the siding the main line will be automatically opened.

In carrying out my invention I have devised the construction and arrangement of parts illustrated in the accompanying drawings, wherein—

Figure 1 represents a plan view of a railway-switch provided with my improved automatic shifting devices. Fig. 2 represents a side elevation of the same, taken upon a plane indicated by the line 2 2 of Fig. 1. Fig. 3 represents in elevation a form of hand-switch which may be used as an auxiliary to the main invention. Fig. 4 represents, partly in section and partly in elevation, one of the pins for operating the pull-rods. Fig. 5 represents in side elevation, partly broken away and partly in section, a locomotive-engine provided with means for operating the switch-shifter, and represents also in section a portion of the shifting-levers; and Fig. 6 represents a section taken upon a plane indicated by the line 6 6 of Fig. 1. Fig. 7 represents, on an enlarged scale, the locking devices illustrated in Fig. 6.

Similar figures of reference indicate similar parts throughout the several views.

Referring to the drawings, 1 1 indicate the rails forming the main track; 2 2, those forming the siding, and 3 3 the customary tapered pivoted switch-rails, all being arranged in the usual manner to constitute a switch. The switch-rails 3 3 are connected at their free ends by a cross-piece 4, which rests upon and

is adapted to slide in the direction of its length upon the base-plate 5 of a casing 6, which is provided for the purpose, as shown, of inclosing a portion of the shifting apparatus.

To the base-plate 5 is pivotally connected at 7 a T-piece 8, having at its ends the oppositely-extending pull-rods 9 10. The free ends of these pull-rods are hooked, as shown, and extend within casings 11 12, located, respectively, beyond the opposite ends of the switch-rails 3 3. The particular construction of these casings is clearly represented in Figs. 1 and 4. They each contain a pivoted vertical pin flexibly secured to the casing proper by a torsion-spring 13 and having the side projections 14 and 15. The first of these projections is located in a position inclined to the direction of a slot in the cover of the casing, and the second projection is adapted to bear against the hooked end of the pull-rod. Upon the engine-cab, as indicated, or upon some other portion of the train is located a pin 16, capable of vertical adjustment by means of a lever 17 at the disposal of the engineer or train-man, suitable connections—as, for instance, those shown in Fig. 5 of the drawings—being provided to lower the pin into the path of the slot and projection 14 by moving the lever in one direction, or by reversing the lever the pin is raised so as to clear said projection, according as it is desired to shift the switch-rails or not.

When in the position indicated in Figs. 1, 6, and 7, the switch-rails are locked against movement by means of the drop-latch 18, pivoted to the side of the cross-piece 4, and which abuts against the end of a stop-piece 19, affixed to the base-plate 5. In like manner when the said switch-rails are shifted so as to open the siding they are locked therein by means of the drop-latch 20 and stop-piece 21. It will be noted that the drop-latches are at their free ends slightly beveled on their under sides, as shown in Fig. 6. I have adopted this construction in order to automatically release the one that is locked before shifting the rails, and for this purpose I connect to the T-piece 8 two pivoted releasing-pins 46 and 47, having hooked ends which extend underneath the drop-latches and just behind their beveled ends. The forward end of the T-

piece 8 extends within a slot 22 of the cross-piece 4, said slot being slightly wider than the said end, so that when the T-piece is oscillated it will, before shifting the cross-piece 4, first allow the appropriate releasing-pin to slide under the beveled end of the drop-latch, thereby raising it and unlocking the switch-rails and permitting them to be shifted with the cross-piece. Studs 23 24 25 or their equivalents serve as guides to insure the proper working of the parts. In the rear of the cross-piece 4 is located the resetting-rod 26, having a guide-piece 27 and extending outwardly beyond the rails. A suitable hand-lever 28, pivoted to a standard 29 and having a link-and-pin connection 30, is provided to shift the rails by hand in case the train should not be equipped with the vertically-adjustable pin for effecting the shifting operation. The link 30 is slotted, as shown in Fig. 3, for the purpose of permitting the movement of the rod 26 by the automatic resetting mechanism, presently to be described, independently of the hand-lever. The resetting-rod 26 is notched near its outer extremity for the reception of one end of a pivoted bell-crank lever 31, located in a horizontal plane. A second bell-crank lever 32, located in a vertical plane, is united to the first by means of a connecting-rod 33, threaded, as shown, for the reception of an adjusting-nut 34. The bell-crank lever 32 is also connected with the vertical piece 35, having a hook projection at its upper end and at its lower end being provided with the balancing-rod 36, carrying the adjustable weight 37. A portion of one of the siding-rails, as 38, is so connected with the adjoining rail-section as to be slightly depressed upon the passage of the engine upon it. Beneath this depressible rail-section extends transversely the depressible lever 39, connected to the upright 40, which in turn is connected with one end of the pivoted lever 41, having the adjustable end weight 42.

The parts of my invention being arranged and constructed as described, the operation is as follows:

When an engine or the like provided with the vertically-adjustable pin described desires to pass from the main line to the siding, the engineer or train-man before reaching the switch pulls the lever 17 toward the left with respect to Fig. 5, thereby lowering the pin 16. When the engine reaches the switch, the pin comes in contact with the side of the projection 14, pushing it aside and causing the casing-pin connected with it to oscillate against the tension of the torsion-spring 13. The movement of the casing-pin causes the projection 15 to retract the pull-rod 9, thereby oscillating the T-piece 8, causing the releasing-pin to raise the drop-latch 18 from the stop 19 and then shifting the cross-piece 4 and with it the shifting rails 3 3 until the drop-latch 20 falls behind the stop 21. By this operation the siding is opened and the switch-rails locked in the corresponding posi-

tion. When the engine passes onto the rail 38 of the siding, said rail is depressed and with it the depressible lever 39 and upright 70 until the upper end of the latter engages beneath the hook projection of the upright 35. After the engine has passed off the rail 38 upon the siding proper, the pressure upon said rail and lever 38 being released, the weight 42 75 raises them and also the upright 40. The upright 40 carries with it the upright 35 until the beveled end of the latter strikes the pin 43, and is thereby forced off the end of the upright 40, and thereupon the weight 37 80 causes the upright 35 to drop to its original position. The upright 35 during the upward movement has, through the intermediacy of the bell-crank levers 31 32, connecting-rod 33, and resetting-rod 26, shifted the rails 3 3 to 85 their original position, reopening the main line. It is evident that by using either the one or the other of the casings the switch may be operated either from the main line or from the siding. Should the engineer through inadvertence or carelessness leave the pin 27 in the lowered position on his return, the passage of the pin through the casing will merely oscillate the casing-pin in the opposite direction without damage to the casing 95 and without operating the switch.

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

1. An automatic switch adapted to be operated by a projection from a moving engine or the like, and consisting of a main track, siding, and shifting rails, a cross-piece connecting the shifting rails, drop-catches pivoted to the sides of said cross-piece, a base-plate provided with stops for engagement with said drop-catches, an oscillatory lever for shifting the cross-piece, said lever being provided with pivoted releasing-pins having hooked ends passing beneath the drop-catches for releasing the same, a pull-rod extending from said oscillatory lever, and an oscillating pin provided with a torsion-spring and having projections, one of said projections being located in the path of the projection from the engine and the other acting upon the pull-rod, substantially as described. 115

2. An automatic switch adapted to be operated by a projection from a moving engine or the like, and consisting of a main track, siding, shifting rails, a cross-piece connecting the shifting rails and provided with a slot, drop-catches pivoted to the sides of said cross-piece, a base-plate provided with stops for engagement with said drop-catches, an oscillatory lever for shifting the cross-piece, the forward end of said lever being adapted to enter the slot in said cross-piece and said slot being of greater diameter than the forward end of the lever, whereby the forward end of said lever is capable of oscillatory motion independent of the cross-piece, releasing-pins pivoted to said lever having hooked ends passing beneath the drop-catches for releasing 130

the same, a pull-rod extending from the oscillatory lever, and an oscillating pin having projections, one of said projections being located in the path of the projection from the engine and the other acting upon the pull-rod, substantially as described.

3. In an automatic switch, the device for imparting movement to the pull-rods, consisting of a slotted casing having a vertical pin connected to its base by means of a torsion-spring and having two projections, one for the purpose of actuating the pull-rod and the other inclined across the casing-slot and in the path of movement of a projection from a moving engine or the like, substantially as described.

4. In an automatic switch, the resetting apparatus consisting of a depressible rail, a lever upon which said rail rests, and an interposed weight for normally holding the depressible rail and lever in their upper position, a shifting-bar for the switch-rails, and a system of levers connected with said shifting-bar, said system of levers being provided with a counter-weight whereby when the depressible rail and lever are forced down by the weight of the passing engine the system of

shifting-levers will come into engagement with the depressible lever and when the engine is past the depressible rail said system of levers will be operated to reset the switch, substantially as described.

5. In an automatic switch, the resetting apparatus consisting of a depressible rail, a depressible lever located beneath said rail, an upright connected with the depressible lever, and a pivoted arm connected to the upright and having a counter-weight, shifting rails having a connecting cross-bar, an upright rod for actuating the switch-rails, a horizontal bell-crank lever engaging with said upright rod, a vertical bell-crank lever connected with the horizontal bell-crank lever and carrying a notched upright provided at its lower portion with a counterbalance-rod and weight and being inclined above said notch, and a releasing-pin above said inclined portion, substantially as described.

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

PAUL HOLDER HERNDON.

Witnesses:

VIRGIL LEE HOPSON,
S. A. MURDEN.