

No. 734,367.

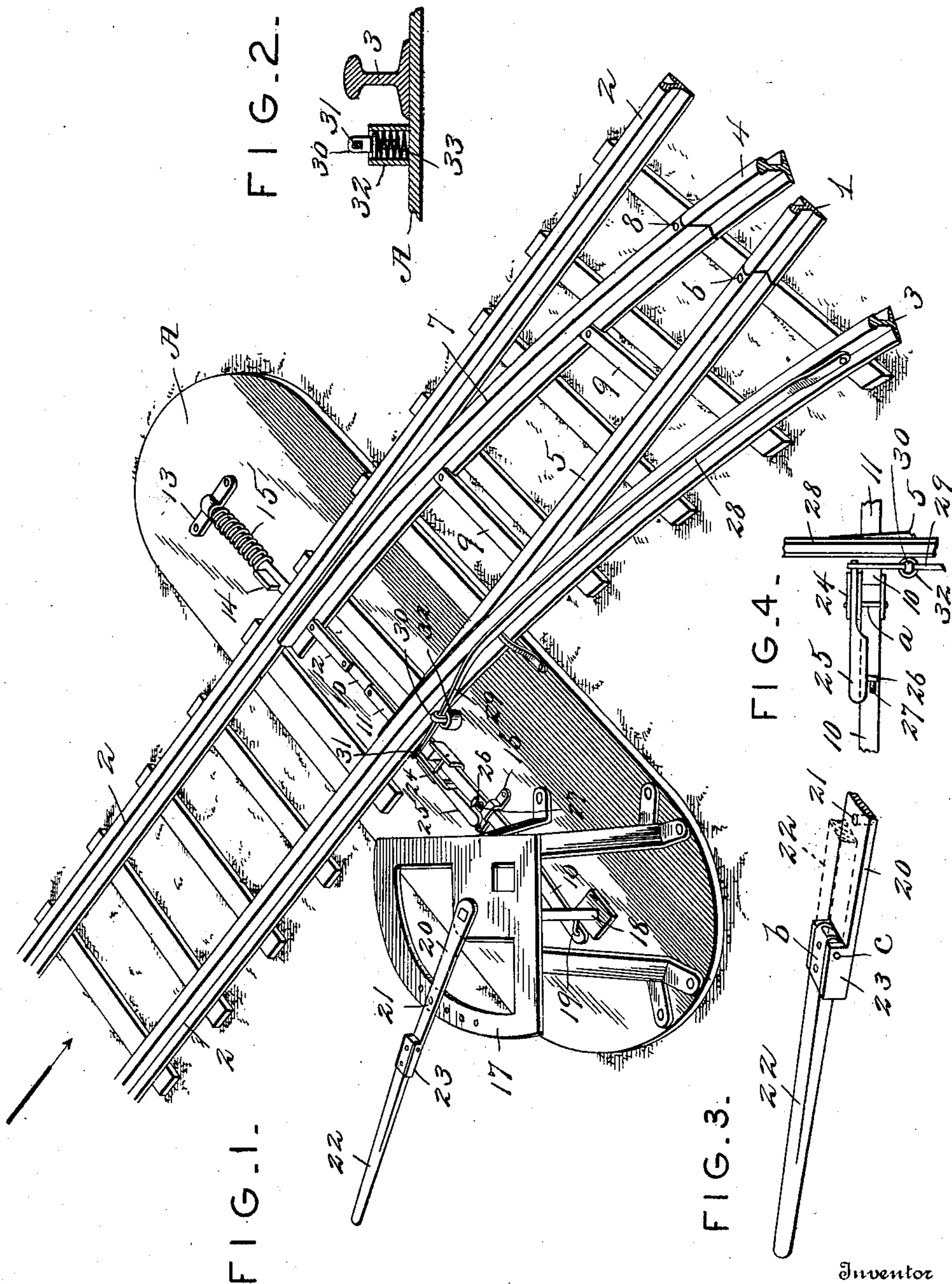
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E. REYNOLDS.

RAILWAY SWITCH OPERATING MECHANISM.

APPLICATION FILED AUG. 19, 1902.

NO MODEL.



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# UNITED STATES PATENT OFFICE.

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## RAILWAY-SWITCH-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 734,367, dated July 21, 1903.

Application filed August 19, 1902. Serial No. 120,237. (No model.)

*To all whom it may concern:*

Be it known that I, ELIAS REYNOLDS, a citizen of the United States, residing at Valley Center, in the county of Sedgwick and State of Kansas, have invented new and useful Improvements in Railway-Switch-Operating Mechanism, of which the following is a specification.

My invention has relation to improvements in railway-switch-operating mechanism; and the object is to simplify and improve existing devices by providing a switch-operating means which is simple in construction, efficient and certain in operation, and durable in use.

The invention embodies a positively-acting lever mechanism for throwing the switch and an automatically-operating means for returning and locking the switch in normal position relative to the main track.

I have fully and clearly illustrated the improvements in the annexed drawings, to be taken as a part of this specification, and wherein—

Figure 1 is a perspective view of the complete device as arranged and placed in operative position. Fig. 2 is a detail sectional view of the lifting-spring for the track bar or lever for operating the latch or dog. Fig. 3 is a detail view of the actuating-lever, showing the particular construction of the hinged connection between the two parts of the lever. Fig. 4 is a detail plan view of the locking mechanism.

Referring to the drawings, A represents a base-piece or floor of such length and width and of such material as will adapt it to the purposes of sustaining and supporting the rails passing over it and the mechanism for actuating the switch rails or points.

1 2 designate the rails of the main track.

3 4 designate the rails of the siding, the rail 3 being a deflected or curved extension of one of the rails of the main or straight track.

5 designates the switch rail or point guarding the straight track and is pivotally fastened at 6 to one of the ties in any suitable manner.

7 designates the switch rail or siding, pivotally secured at its inner end, as at 8.

The switch-rails 5 and 7 are united by cross-

bars 9, so as to move in unison in the usual manner.

10 designates the switch-bar, slidably arranged under the rails and switch-frame and secured to the former by means of arms 11 12, projected from the switch-rails, and suitable fastening-bolts through the parts, as indicated. The outer end of the switch-bar 10 is slidably arranged in a keeper 13, and at a convenient point from its end is provided with a stud 14, between which and the keeper 13 an expansive spring 15 is mounted on the switch-bar. The force of this spring 15 operates to throw the switch-frame at all times back into normal position with the point of the straight switch-point in alinement with the rail of the straight or main track, as indicated in the drawings. An additional keeper 16 is secured to the floor over the switch-bar to keep it in alinement with its movements.

A suitably-supported switch-stand 17 is erected on the floor A at one end thereof, and between the floor and the plate of the switch-stand is pivotally mounted a vertical shaft 18, from the lower end of which projects an arm 19, the outer end of which is pivotally fastened to the end of the switch-bar. To the upper end of the shaft 18, which projects above the floor or plate of the switch-stand, is secured a lever 20, movable on a horizontal plane and provided with any suitable spring-lock 21 to engage the curved bar of the switch-stand and lock the lever at any point to which it may be turned. The lever 20 is provided with an extensible handle-piece 22, which may be hinged thereto, as at c, to turn back on the lever 20, as indicated in dotted lines in Fig. 4, and adapted to be turned out to horizontal position, as shown, in which position the inner end portion lies between the vertical edge flanges 23, formed on the outer end portion of the lever 20, and thus prevented from lateral displacement in its relation to the lever 20. A plate b, having side flanges, is fitted on the end of the handle-piece 22, through which the pivot or hinge pin c projects. Adjacent to and on the outer side of the rail 2 is secured a housing 24, through which the switch-bar 10 passes and is guided. In this housing, on a pivot-



pin  $\alpha$ , is pivotally mounted a dog or latch 25, which extends alongside of and parallel with the switch-bar and having its inner end closely adjacent to the side of the rail. In the side 5 of the latch 25, near its outer end, is a laterally-projecting pin or stud 26, which engages behind a vertically-projecting lug 27 on the switch-bar 10, the lug 27 having an outer inclined face, so that in the restoration movement of the switch-bar the latch-pin will ride 10 over it and fall behind it in locked position.

28 designates a lever-bar having one end pivotally secured to the switch-rail 3 and carried in alinement with the face of the rail, 15 with its upper end reaching above the tread-face of the rail, to be depressed by the force of the car-wheels as they pass over it. The free end of the lever-bar 28 at its free end portion is carried laterally away from the 20 rail, as at 29, passing through a stud 30, and has its end lying over and bearing upon the inner end of the latch 25, so that when the lever-bar is depressed the latch will be tilted and the pins or lugs 26 27 disengaged to permit the switch-bar to be actuated and free to 25 be returned to normal position. When the switch-frame is turned or shifted to direct the train onto the siding, the end of the lever-bar 28 presses on a block 31 on the switch-bar and holds the switch-bar against being 30 moved back by the force of the spring. The stud 30 stands in a vertical sleeve 32, fixed in the floor A, and is pressed or moved in upward direction by an expansive spring 33, suitably disposed to effect the purpose. 35

It will be perceived that the operation of the mechanism is as follows: When it is required to throw the switch-frame to position to direct a train onto the siding, the lever 21 40 22 is extended and the latch 25 tilted to disengage the locking-lugs. The lever can then be turned to move the switch-frame into position for running the train in on the siding. The train then moves on the siding and over 45 the lever-bar 28, which is depressed to hold the switch mechanism in set position by pressure on the block 31. As soon as the pressure

on the lever-bar is relieved the spring 33 raises it and leaves the latch free to fall back into normal position, previous to which the spring 50 15 moves the switch-bar back, carrying with it the switch-frame to normal position, and the pin of the latch then falls behind the lug on the switch-bar, and the switch-frame is thus locked in place. 55

Having thus fully described my invention, what is claimed as new is—

1. The combination with the movable switch-frame, of a switch-bar to move the switch-frame in one direction, an expansive 60 spring on the switch-bar to move it automatically in the opposite direction, and a latch to engage and hold the switch bar and frame in normal position.

2. The combination with the movable 65 switch-frame, of a switch-bar to move the switch-frame in one direction, an expansive spring on the switch-bar to move it automatically in the opposite direction, a vertically-tilting latch to engage the switch-bar, and a 70 lever-bar pivotally secured at one end to the siding-rail and its free end resting on the inner end of the latch, and disposed to be depressed by a passing wheel to tilt the latch.

3. The combination with the movable 75 switch-frame, of a switch-bar to move the switch-frame in one direction, an expansive spring on the switch-bar to move it automatically in the opposite direction, a tiltable latch to engage and lock the switch-bar, a lever-bar 80 pivotally secured at one end to the siding-rail and its free end positioned on the inner end of the latch and disposed to be depressed by a passing wheel, and tilt the latch and hold the switch-bar, and a spring-actuated stud 85 secured to the lever-bar to raise it after a wheel has depressed it.

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

ELIAS REYNOLDS.

Witnesses:

G. R. DAVIS,  
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