

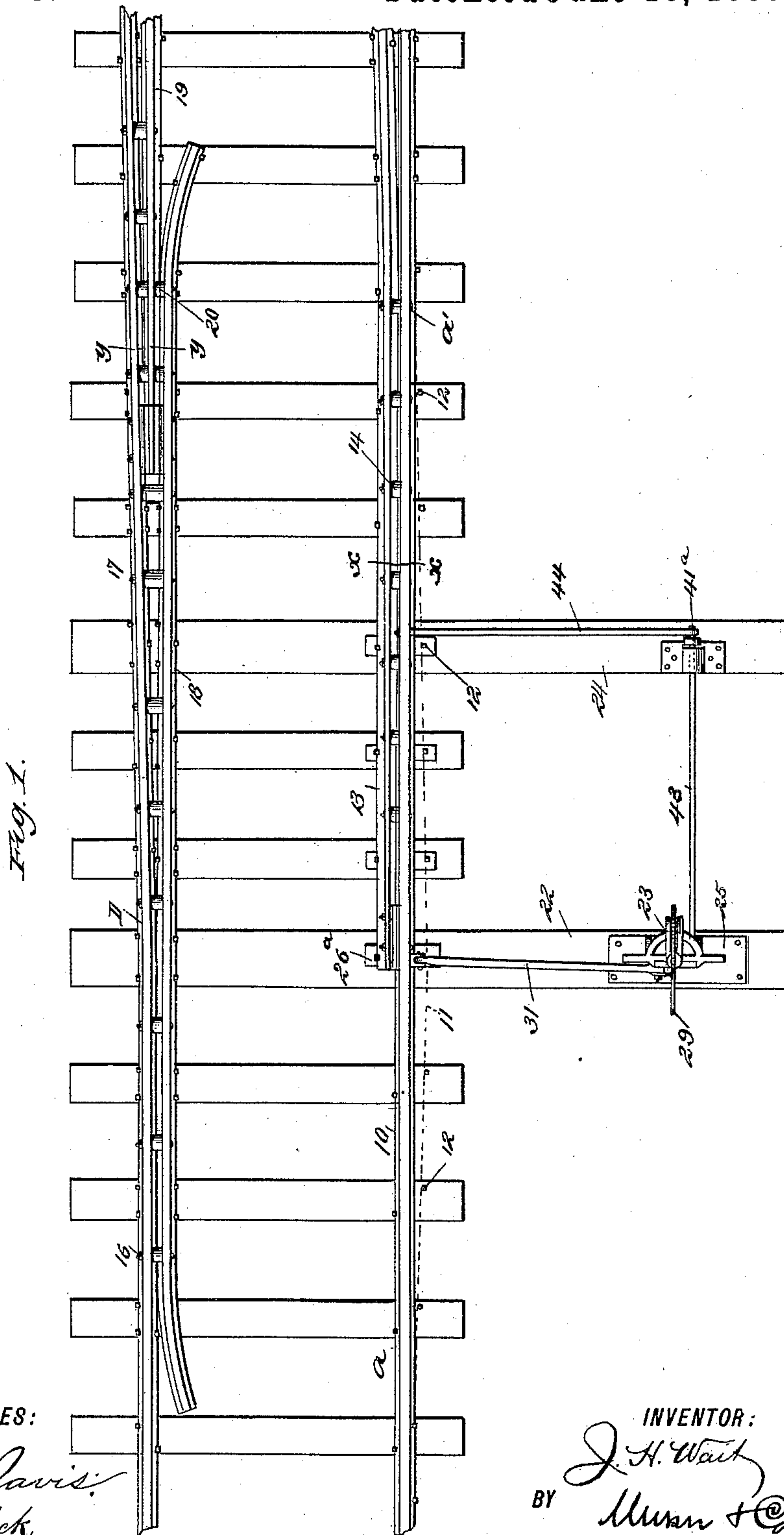
(No Model.)

2 Sheets—Sheet 1.

J. H. WAIT.  
AUTOMATIC SAFETY RAILROAD SWITCH.

No. 405,513.

Patented June 18, 1889.



WITNESSES:

*W. R. Harris*  
*W. Sedgwick*

INVENTOR:

*J. H. Wait*  
BY *Mun & Co*  
ATTORNEYS.

(No Model.)

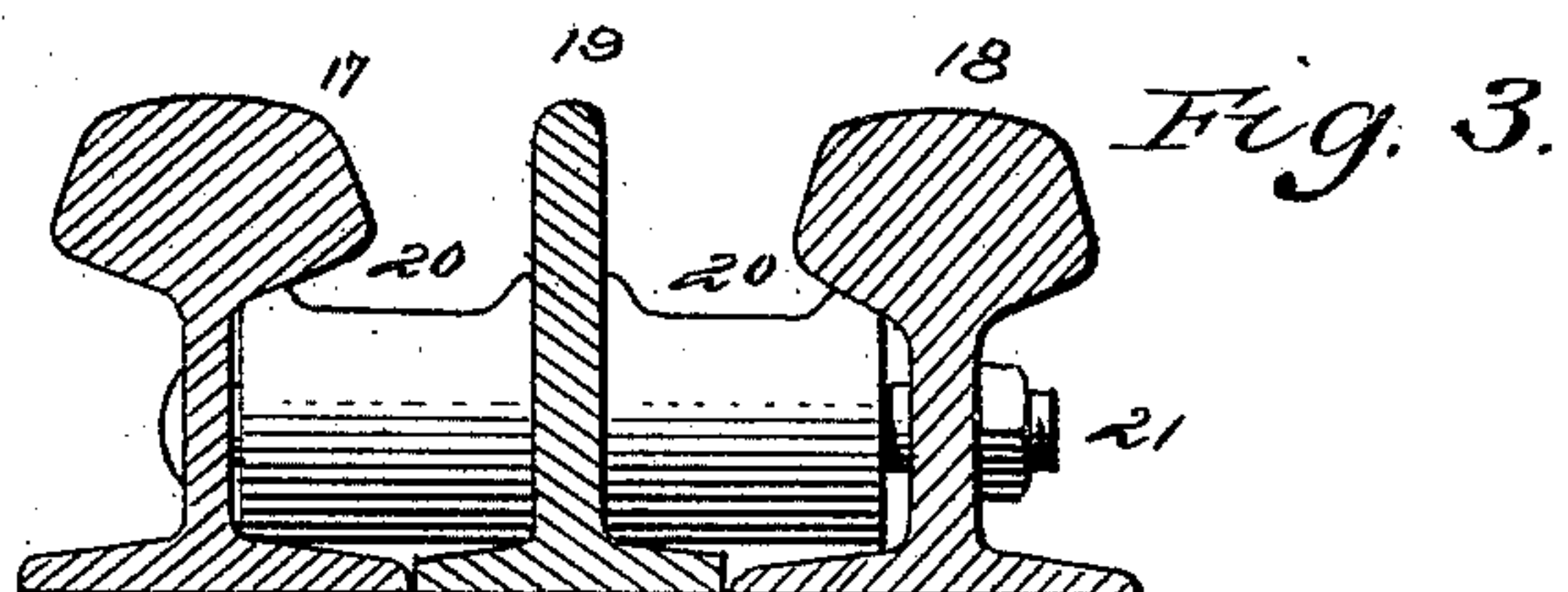
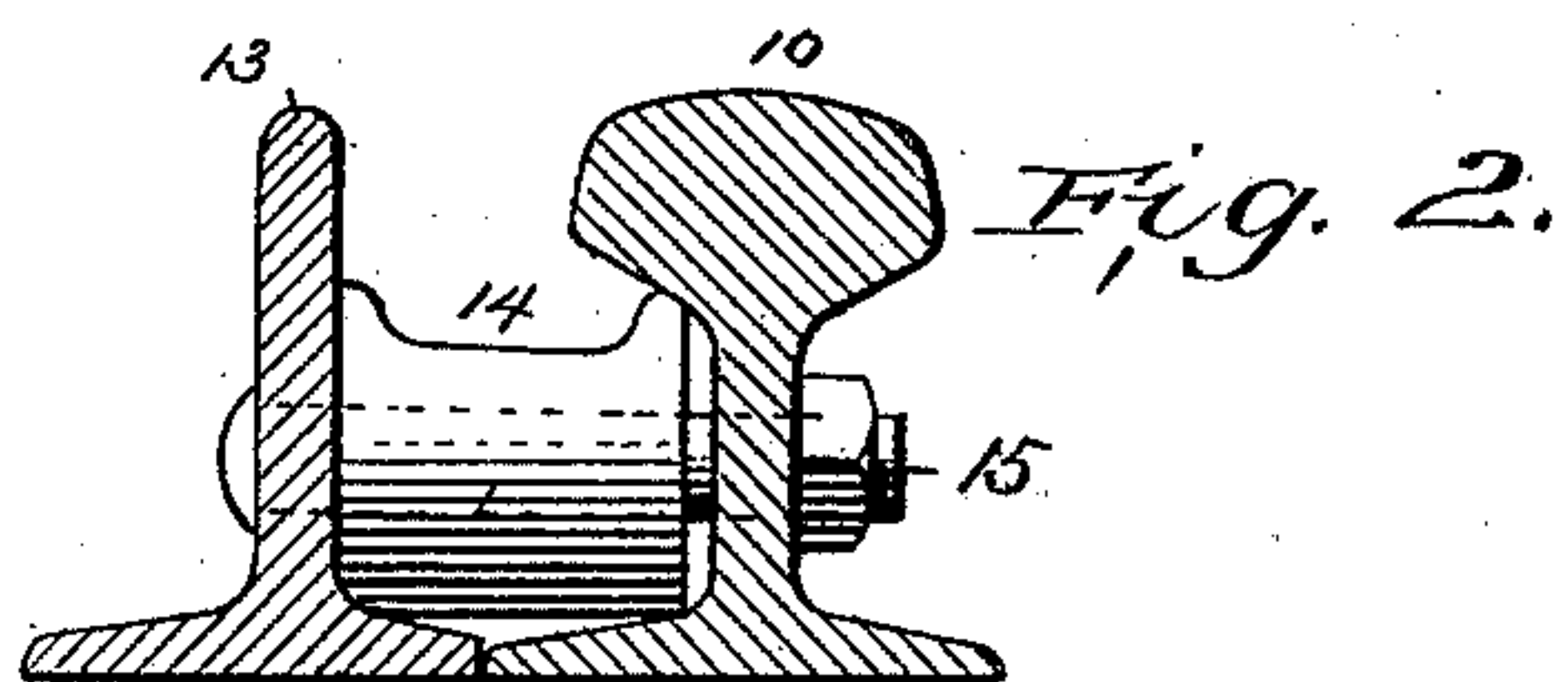
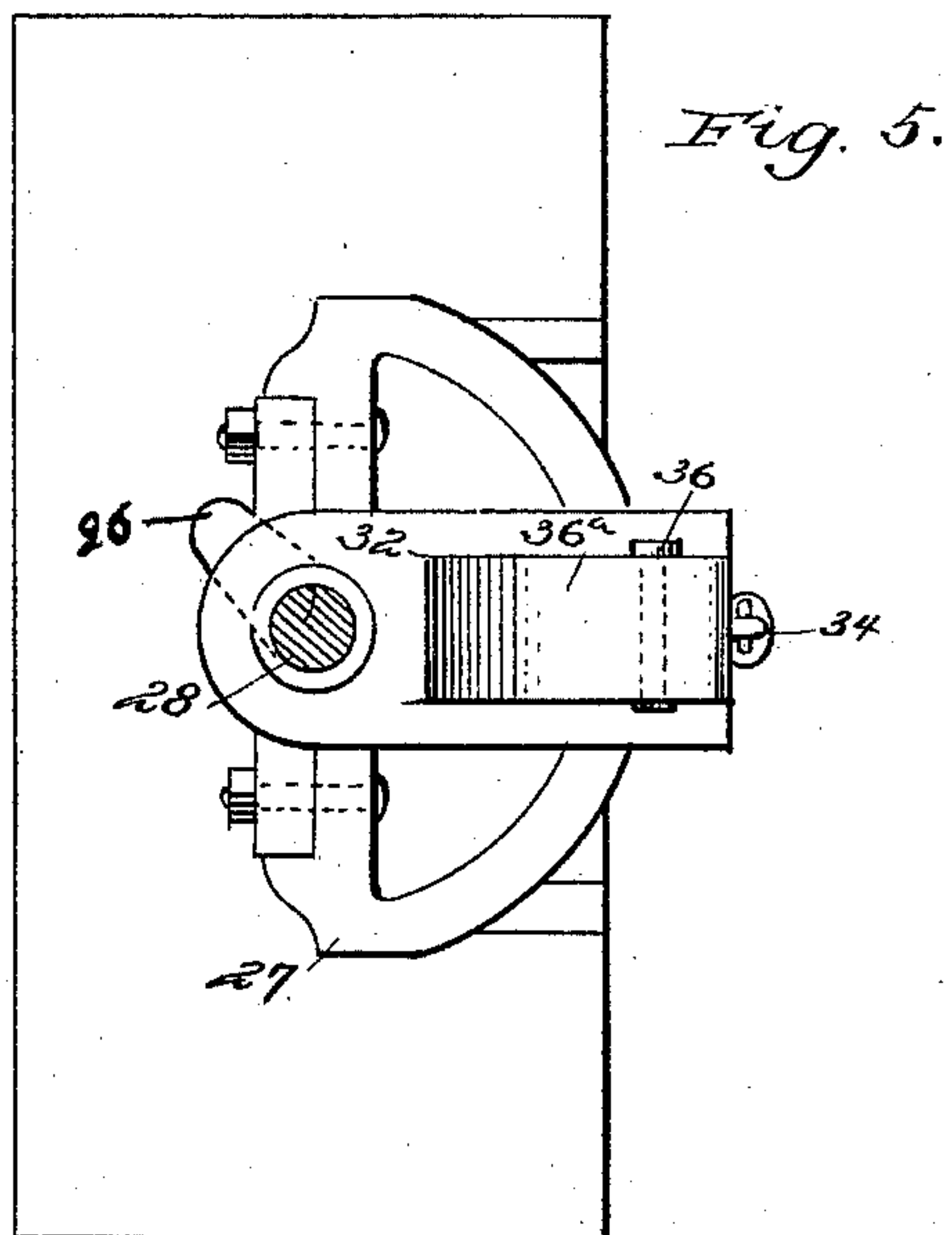
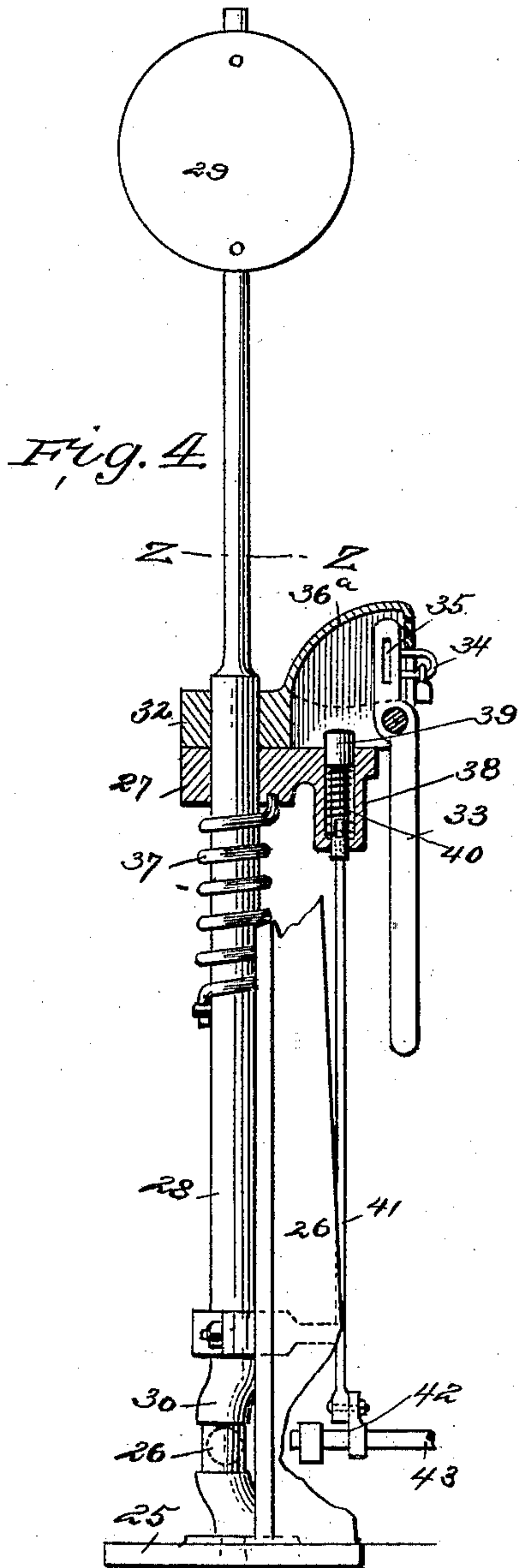
2 Sheets—Sheet 2.

J. H. WAIT.

AUTOMATIC SAFETY RAILROAD SWITCH.

No. 405,513.

Patented June 18, 1889.



WITNESSES:

*W. R. Davis,*  
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# UNITED STATES PATENT OFFICE.

JOHN H. WAIT, OF JUNCTION CITY, OREGON.

## AUTOMATIC SAFETY RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 405,513, dated June 18, 1889.

Application filed November 23, 1888. Serial No. 291,677. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. WAIT, of Junction City, in the county of Lane and State of Oregon, have invented a new and Improved Automatic Safety Railroad-Switch, of which the following is a full, clear, and exact description.

My invention relates to an improvement in safety railway-switches, and has for its object to provide a switch automatic in its action, so constructed that it will prevent derailment at the switch irrespective of the position of said switch and the direction in which the train moves.

The object of the invention also is to provide a switch and stand that will be always right for the main track, and wherein whenever it becomes necessary to be thrown for the side track the person or persons manipulating the same will be obliged to hold the switch in that position until the train is side-tracked when the switch will immediately fly back to the main track and automatically lock itself.

A further object of the invention is to provide a means whereby should a train be on the side track and it becomes necessary for it to pass out upon the main track it may so proceed without turning the switch, and immediately after the train passes out the switch will adjust itself to the main track, and wherein at any time should the switch be turned for the siding and secured in such position by accident or otherwise, the wheel-flanges of the approaching train will automatically adjust the switch to a proper position.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the switch. Fig. 2 is a transverse section on line  $xx$  of Fig. 1; and Fig. 3 is a similar section on line  $yy$  of Fig. 1. Fig. 4 is a side elevation of the switch-stand, partly in section; and Fig. 5 is a sectional plan view on line  $zz$  of Fig. 4.

In carrying out the invention the main rail 10 is not spiked to the ties from a point  $a$  to

a point  $a'$ , but is rigidly secured at other points in its length. When the switch is set for the main track, the said main rail is straight, and when the switch is thrown for a siding the said main rail 10 is sprung laterally outward to the dotted line 11, (illustrated in Fig. 1,) the said outward lateral movement of the rail being limited by a series of metal stops 12, which may consist of spikes driven into the ties.

A side-track rail 13 is placed upon the inner side of the movable main rail 10 and secured parallel therewith by means of thimbles 14 and bolts 15 passing through said thimbles and the web of the rail, as best shown in Fig. 2. By this construction it will be observed that the main rail 10 and side rail 13 are moved together.

The second main rail 16, which is opposite to the movable main rail 10, runs straight and parallel with the latter rail as far as the point D, from whence it is curved outward to form a side-track section 17. The track 16 is securely spiked its entire length to the ties. Inside the rail 16 a guard-rail 18, parallel with the straight portion of rail 16, is located, a greater distance intervening between the side-track section 17 of rail 16 and guard-rail 18, owing to the divergence of said section 17, as best shown in Fig. 1.

Between the side rail 17 and the guard-rail 18 one end of a point-rail 19 is projected into the widest space. The point-rail 19 and the guard-rail 18 are parallel with each other, and are secured together and to rail 17 by means of thimbles 20 and bolts 21, as best shown in Fig. 3, and in addition the said rails are firmly secured to the ties by spikes.

The main rail 10 and side rail 13 are moved about two and a half inches at the point  $26^a$ —for instance, as shown in the drawings, to the right. The switch is then thrown for the side track, and is in position for trains to enter the siding. The point or side rail 13 and the main rail 10 are a sufficient distance apart to permit the flanges of the wheels to pass between the two tracks when the switch is in position for the main track; but when the switch is in position for the siding the main rail 10, together with the side rail or point 13, is thrown to the right two and a half inches at the point  $26^a$ , which moves the main rail



out of line, and the side or point rail 13 at 26<sup>a</sup> is brought in line, and the wheel flanges running to the left side of the side rail enter the side track.

5 The guard-rail 18 is secured to the main rail 16, side rail 17, and point-rail 19 its entire length, and the said guard-rail, main rail, and point-rail are a sufficient distance apart to admit the flanges of the wheels, for instance, 10 two inches.

When the switch is thrown for the main track, the wheel-flanges will run between the guard-rail 18 and point-rail 19, and when 15 thrown for the side track the flanges will run between the point-rail and the side-rail section 17. The tie 22, beneath the point 26<sup>a</sup> in the main rail 10, is carried outward, and upon the outer end of said tie a switch-stand 23 is located. A second projecting tie 24 is also 20 provided. The switch-stand consists of a suitable base 25, from which a standard 26 is perpendicularly projected, provided with an integral horizontal cap-plate 27. In the base 25, and also in the front of the cap-plate 27, at 25 or near the center, a shaft 28 is journaled, provided at the upper end with a signal 29 and at the lower end with a crank 30, said crank being united with the main rail 10 at the point 26 by the connecting-rod 31.

30 Upon the cap-plate 27 a bifurcated arm 32 is held to slide, the signal crank-shaft 28 being attached to the same. In the end of the arm 32 a lever 33 is pivoted, the handle of which when in a normal position extends vertically downward and the opposite end up- 35 ward, as shown in Fig. 4. The said upper end of the lever is provided with a staple 34 or a slot 35, or both, as may be deemed advisable. The lever is locked in this position 40 by a headed bolt 36, passing through both sides of a hood 36<sup>a</sup>, covering the space intervening between the members of the horizontal arm 32 and the slot in the lever, and when the staple 34 is attached to the lever said 45 staple is made to project through an aperture in the rear of the hood, and a padlock is passed through the staple. The bolt 36 is also used in connection with a padlock.

The crank of the signal-shaft is made to 50 throw two and one-half inches, and is invariably in a central position when not in use—that is, when the main track is open. The crank is normally retained in this position by a torsion-spring 37, secured at one end to the 55 shaft 28 and at the other end to the bottom of the cap-plate 27. A vertical aperture is made in the cap-plate about midway between the shaft 28 and the outer edge of said plate, the aperture being approximately of the same 60 length as the width of the opening between the members of the arm 32. A casing 38 is secured to or cast integrally with the under surface of the cap-plate around the aperture therein, which casing extending perpendicu- 65 larly downward is partially closed at the lower end.

Within the cap-plate aperture and the cas-

ing a bolt 39 is held to slide, having preferably a tapering upper end or head and a reduced body or shank. The head of the bolt 70 is normally held above the cap-plate within the space intervening between the members of the arm 32 and beneath the hood 36<sup>a</sup> by a spring 40, encircling the body of the bolt, having a bearing against the head of the latter 75 and upon the bottom of the said casing 38, as best illustrated in Fig. 4.

One end of a link 41 is swiveled to the bolt 39 within the casing, and the other end is 80 pivoted to a crank 42, located upon the shaft 43, journaled in suitable bearings attached to the projecting tie 24, and a crank 41<sup>a</sup> on said shaft 43 is in turn pivotally united to the main rail by the connecting-rod 44.

If, for instance, the switch being locked for 85 the main line, a train comes down the siding, the flange of the wheels against the inner face of the side rail 13 will press the said rail outward, whereupon the shaft 43 will be turned, the trip-rod drawn down, and the bolt 90 39 disengaged from the bifurcated arm 32, permitting said arm to move laterally upon the cap-plate and the rails 10 and 13 to bend at the point 26<sup>a</sup>, thus allowing the wheels to take the main track 10, after which the spring 95 37 will act and restore the crank-shaft 28 to its normal position, the main rail also assuming a straight line.

In manipulating the switch by hand the lock bolt or pin is removed, if used, or the lock 100 is withdrawn from the staple 34 and the lever brought up to a horizontal position, which depresses the bolt 39 and is carried to one side, and as the fulcrum of the lever is attached to the signal-shaft the said shaft is revolved. 105 When the train has been side-tracked, the lever 33 is released and the rails and signal-shafts return to their normal position.

Having thus described my invention, I claim as new and desire to secure by Letters Patent— 110

1. The combination, with a main rail laterally movable at a point in its length and a parallel switch-rail attached thereto and movable therewith, of a stationary outwardly-curved main rail, an inner fixed guard-rail, 115 and a rail-point intervening between the guard and fixed main rail at one end, substantially as shown and described.

2. The combination, with a laterally-movable main rail and a parallel switch-rail at- 120 tached thereto and movable therewith, of an outwardly-curved stationary opposing main rail, an inner guard-rail, a point-rail intervening between the guard and main rail at one end, and spacing-thimbles and bolts unit- 125 ing the fixed main rail, the guard and point rail, substantially as and for the purpose specified.

3. The combination, with a laterally-movable main rail and a parallel switch-rail 130 spaced therefrom, attached thereto and movable therewith, of an outwardly-curved stationary opposing main rail, an inner guard-rail, a point-rail intervening between the main



and guard rail at one end, spacing-thimbles and bolts connecting the stationary main rail, the point and guard rail, and the movable main rail and switch-rail, and means, substantially as shown and described, for manipulating the movable rails, as and for the purpose specified.

4. In a railroad-switch, the combination, with a curved fixed main rail and a fixed point-rail, of an opposing main rail laterally movable a distance in its length, and a parallel switch-rail movable with the latter main rail, substantially as shown and described.

5. In a railroad-switch, the combination, with a curved fixed main rail, a fixed point-rail, and opposing main rail laterally movable

a distance in its length, and a switch-rail movable with the latter main rail, of a switch-stand connected with the movable rails, consisting of a spring-actuated signal-shaft, a frame supporting said shaft, a horizontal arm attached to said shaft, a lever fulcrumed upon said arm, a spring-actuated bolt capable of engaging with the horizontal arm, a crank-shaft connected with the bolt and the movable rail, and a direct connection between said movable rails and the signal-shaft, substantially as shown and described.

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Witnesses:

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