3 Sheets—Sheet 1.

J. W. CLOSE.

Railway-Switch.

No. 202,632. **Patented April 23, 1878.**

Fig. 1.

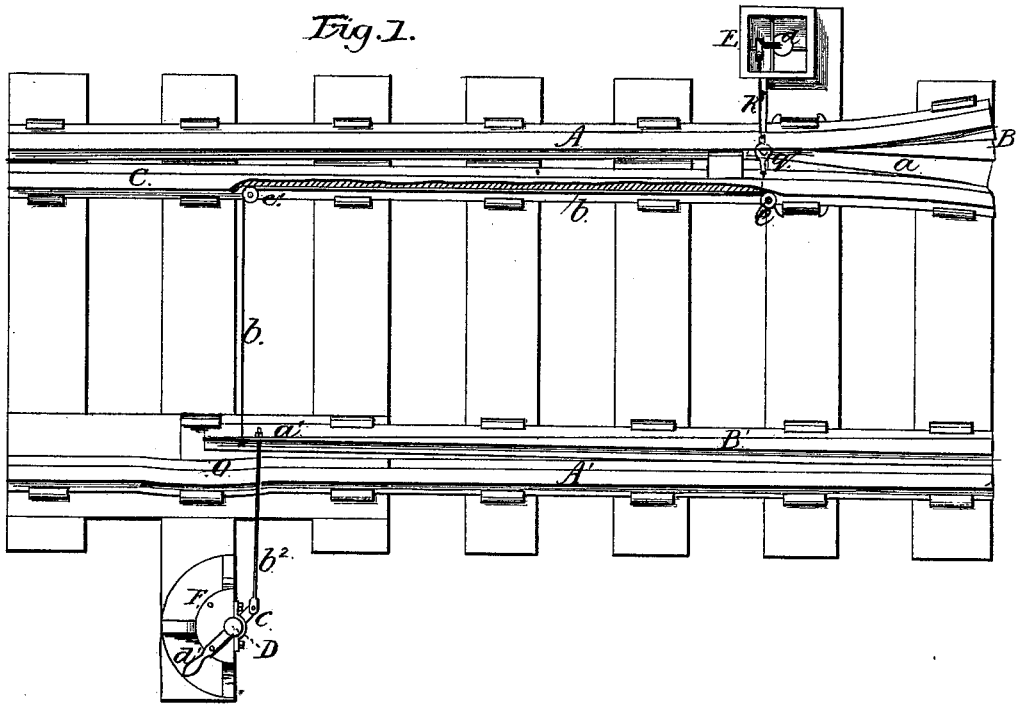
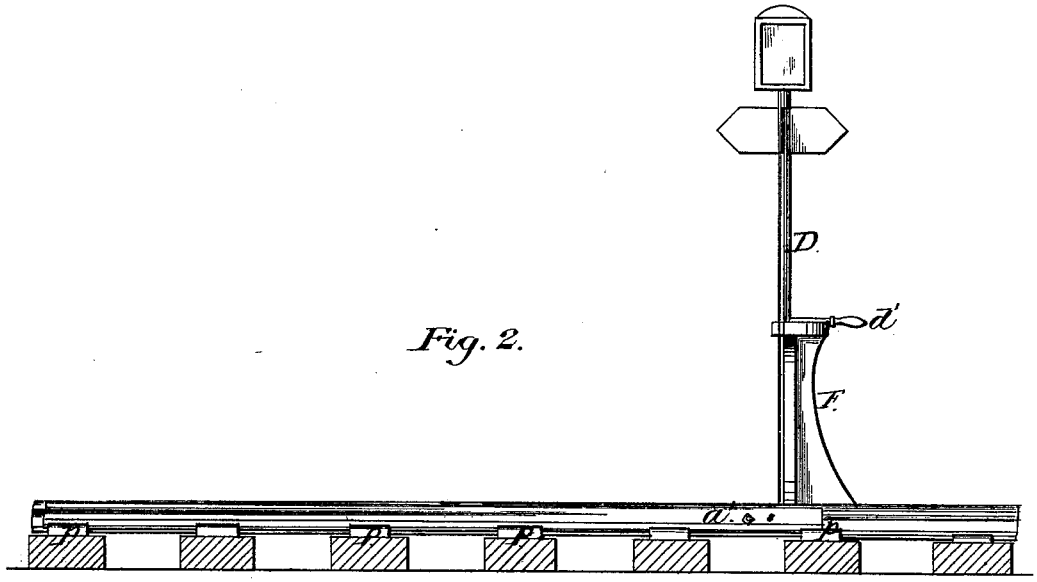


Fig. 2.



Witnesses:
M. Gardner
Frank. Fretter

Inventor:
John W. Close
By W. C. Dunn
Atty's Attorney

3 Sheets—Sheet 2.

J. W. CLOSE.

Railway-Switch.

No. 202,632. Patented April 23, 1878.

Fig. 3.

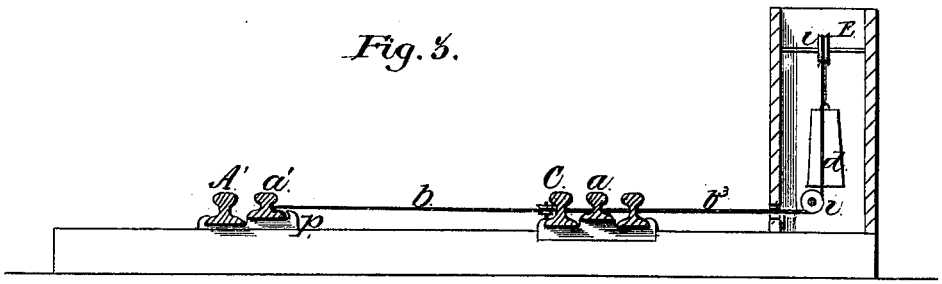


Fig. 4.

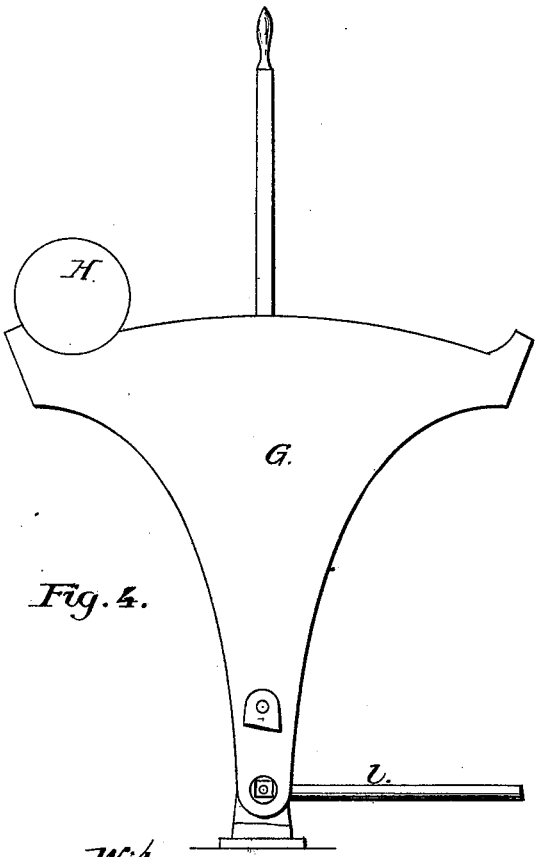
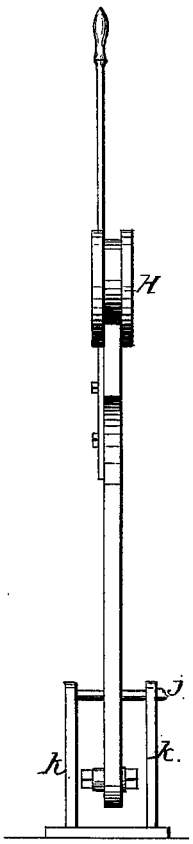


Fig. 5.



Witnesses:
M. Gardner
Frank. Tretler

Inventor:
John W. Close
By W. L. Donn
His Attorney

3 Sheets—Sheet 3.

J. W. CLOSE.

Railway-Switch.

No. 202,632. Patented April 23, 1878.

Fig. 6.

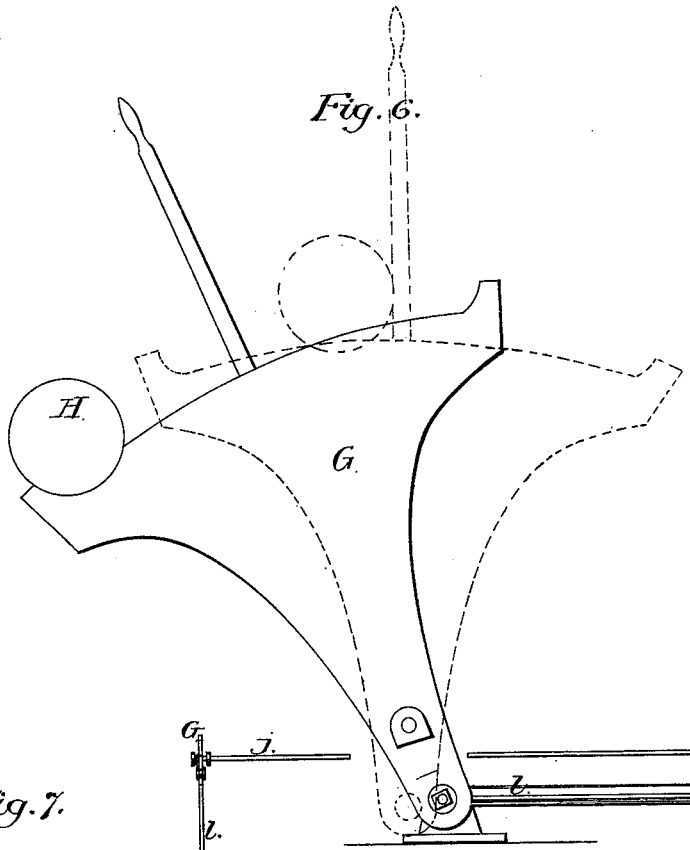
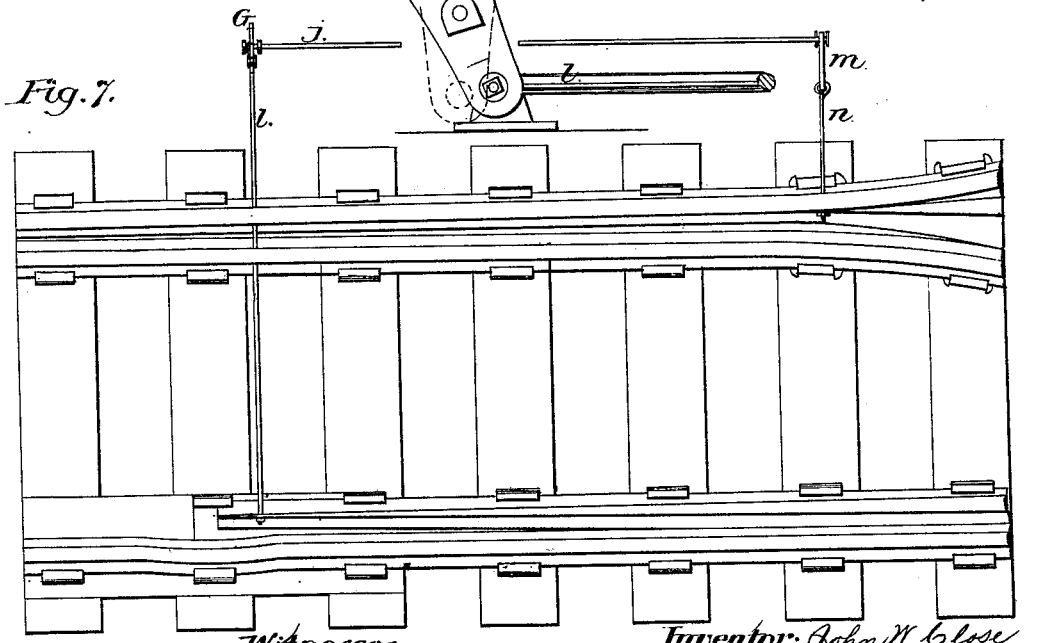


Fig. 7.



Witnesses:
Alexander
Frank. Fretler

Inventor: John W Close
By W. L. Donn
His Attorney

UNITED STATES PATENT OFFICE.

JOHN W. CLOSE, OF BUFFALO, NEW YORK.

IMPROVEMENT IN RAILWAY-SWITCHES.

Specification forming part of Letters Patent No. **202,632**, dated April 23, 1878; application filed December 21, 1875.

To all whom it may concern:

Be it known that I, JOHN W. CLOSE, of the city of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention consists in the combination of devices, hereinafter described, for controlling the operation of a railway-switch by means of a weight operating to move the switch in one direction, and a torsion-spring lever or crank-shaft operating to move it in the opposite direction.

It further consists in cutting down the forward end of the switch-rail point to form an eye for the attachment of a rod or chain, by which the switch can be moved.

It further consists in the combination of a torsion-spring shaft with devices for the operation of the switch-rails, all in the manner hereinafter more fully set forth.

In the accompanying drawings, forming part of this specification, Figure 1 represents a plan of the switch. Fig. 2 is a side elevation of the same, showing the point that occupies the most advanced position. Fig. 3 is a transverse section of the switch. Figs. 4, 5, and 6 represent a modification of the device for operating and setting the switch-points; and Fig. 7 is a plan of the switch with this modified device applied to it.

Referring to the drawings, A A′ are the rails of the main track. B B′ are the switch-rails, and C is the guard-rail. *a a′* are the movable points of the switch, capable of a slight lateral movement to and from the rails of the main track. D is the crank-shaft, for operating the points *a a′*, provided with a torsion-spring, and stationed alongside the track opposite the point *a′*. The movable points are connected with the crank-shaft by the chain or wire rope *b*, attached at one end to the point *a*, and from there passed, through the web of the guard-rail, around the pulley *e*, thence alongside the guard-rail to the pulley *e′*. From this pulley it is carried through the web of the guard-rail and fastened to the point *a′*. A rod, b^2, passed through the rail A′, connects the point *a′* with the arm *c*, projecting from the torsion crank-shaft. A chain or wire-rope, b^3, is attached to the point *a*, and runs from it, through the main rail A, into the housing E around pulleys *i i*, Fig. 3, and is connected to a heavy weight, *d*. The two points of the switch are thus connected together and held in the same relative position, so that any movement of one is partaken of by the other, and both points are under the immediate control of the device for operating the switch. Thus, to open the switch, the torsion-shaft D is turned by the lever *d′* until the point *a′* is in line with the main track, and it may be secured in position by a pin passed through a hole in the lever and entering the top of the post F. If, now, a train should pass along the main track from right to left, the flanges of the wheels would force the points over in the direction of the weight against the tension of the torsion-shaft, and when they have passed the tension of said shaft will replace the points, as before. Likewise, when the parts are placed as shown in Fig. 1, if a train should pass from right to left from the switch onto the main track, the flanges of the wheels would similarly adjust the points, throwing them toward the torsion-shaft until the train had passed, when the weight would replace them, as before. Thus a train may pass from right to left from the switch onto the main track when the switch is closed, and then back upon the main track from left to right without any manual adjustment of the switch; or, similarly, it may pass along the main track from right to left when the switch is open, and then back, from left to right, onto the side track.

In the movement above described as taking place when the switch is closed, if handle *d′* be confined in its place by a pin, the action of the torsion-shaft will be in harmony with the draft of the weight, and will force in the same direction. But in the movement described above as taking place when the switch is open, handle *d′* being held at F, the action of the torsion-shaft will be against the weight. Further, if a side track be joined at both ends

with the main track by my switch, above described, it is evident the adjustment may be such that trains from one direction may pass from the main onto the side track, and again onto the main track; and trains from the other direction may pass directly through on the main track, all without change of the switches.

Figs. 4, 5, 6, and 7 represent another form of device for the same purpose. This consists of the segmental lever G, placed at right angles to the track, with its fulcrum *j* pivoted in the uprights *k k*, secured to one of the ties or upon any suitable foundation.

A rod, *l*, pivoted to the short arm of the lever, extends across the track through or under the rail A, and is attached to the point *a'*. The fulcrum *j* extends down the track outside the rail A, and is pivoted to the crank *m*. A rod, *n*, connects the arm of the crank with the point *a*. By vibrating the lever G the points *a a'* are moved so as to open or close the switch; but to set the switch in one position, so that when the points are forced aside by a passing train they will reset themselves, I place on the segment of the lever the weight H, and adjust the point so that the lever will occupy the position shown in Fig. 6. Now, when a train passes through and moves the points aside, the lever will be carried to the position indicated by the dotted lines; but as soon as the train has passed through, the weight H, being off the center of gravity and sufficiently heavy to overcome the resistance, will force the lever back into its proper position, and thus reset the points.

The rail A is provided with a bend, *o*, opposite the point *a'*, so that when the switch is opened and the point *a'* is moved up to the rail A', a flush connection and even curve are formed without cutting or otherwise weakening the rail of the main track. The point *a'* has less height than the rail A', and it sits on a higher chair, *p*, so that when moved to open the switch it slides over the flange of the rail A and rests upon it. Thus all danger of the switch clogging from gravel, ice, and other obstructions getting between it and the rail is avoided.

q represents my improved connection for the points and the rods or chains of the operating device. It consists simply of a clevis or short rod, pivoted to the flange of the point, which is made to project a little, so as to give room for the nut that secures in place the pivot or bolt. To this clevis or rod the chain, rope, or rod that connects the point with the lever or crank is attached, and thus a secure and lasting connection is made without in any degree lessening the strength of the points.

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

1. The pulleys *e e'*, in combination with the rope or chain *b*, points *a a'*, operating-lever or crank-shaft, and weight *d*, substantially as and for the purpose hereinbefore described and set forth.

2. The pivoted link *q*, in combination with the point of a switch, to which it is attached, and the rod, chain, or cord connecting it with the operating device, substantially as and for the purpose hereinbefore described and set forth.

3. The torsion-shaft D, in combination with the lever *d'*, connecting-rod b^2, and rail-point *a'*, all constructed and operating as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of June, 1875.

JOHN W. CLOSE.

Witnesses:
C. H. DANIELS,
HENRY W. BOX.