R. W. BARRETT.

RAILROAD SWITCH.

No. 188,091. Patented March 6, 1877.

Fig: 1.

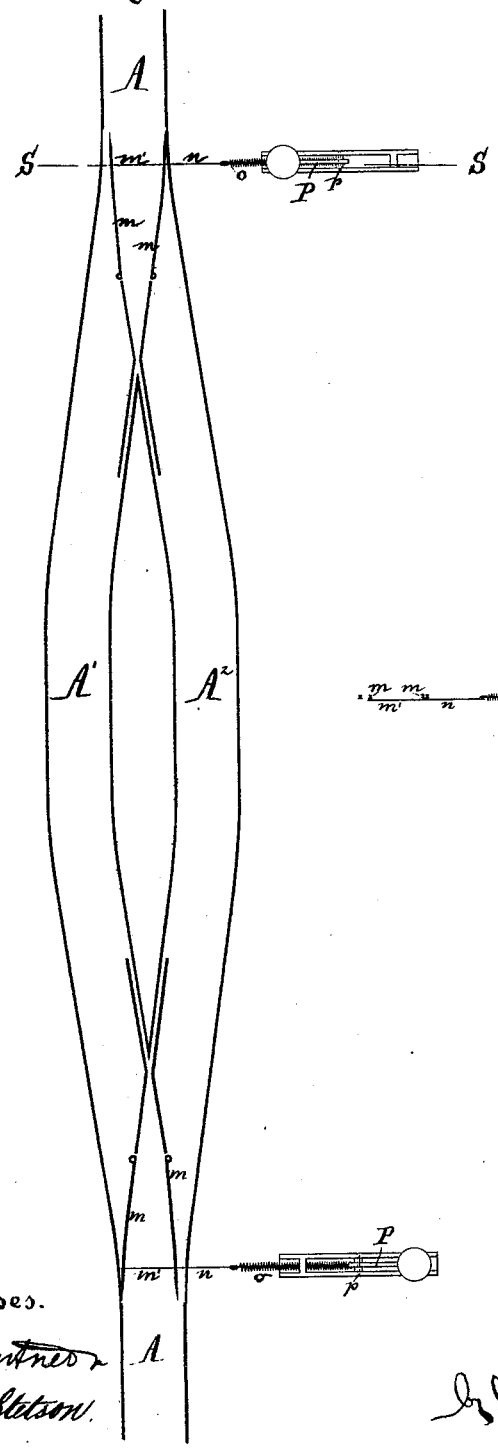
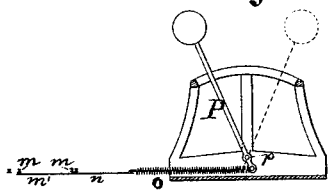


Fig: 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **188,091**, dated March 6, 1877; application filed November 22, 1876.

To all whom it may concern:

Be it known that I, RICHARD W. BARRETT, of Ely, Orange county, Vermont, have invented certain new and useful Improvements Relating to Self-Acting Railroad-Switches, of which the following is a specification:

The invention is designed more especially for inclined railroads, used to lower copper, coal, or other material down a mountain; but it may be of advantage in various other situations. The cars are operated by ropes. The superior weight of one car, or of two or more connected together, descending loaded, overcomes the resistance and hauls up a like number of similar cars empty. I will speak of it as using only a single car at each end of the rope.

It has heretofore been common to employ two complete railroad-tracks the whole length of the incline, allowing one car or set of cars to traverse down and back on one track, while the other set, which balances it, traverses up and down on the track alongside. In many situations where the way is irregular, requiring high trestle-work and deep cutting, and especially blasting through a ledge at any point, there is great economy in my invention, which allows the use of single tracks, except at one point near the middle height, where the cars pass each other.

I make a double track for a short distance at that point, with a switch at the upper and lower end thereof. The passing of a car, or set of cars, in either direction sets the switch, so that it remains firmly held in the position to receive the car again on the same half of the double track on its return. I provide a spring which operates between the switch-rails and the loaded lever in such manner as to relieve the parts from the concussion which follows the shifting of the switch-rails by a car passing with speed; the spring receives the sharp shock, and then exerts its influence slowly upon its connections.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is a plan view, showing my invention, and Fig. 2 is a section on the line *s s*, Fig. 1.

Similar letters of reference indicate like parts in all the figures.

The short length of double track, halfway up the mountain, is marked A^1 A^2. The single track above and below is marked A.

The change from the single to the double track, and back again, is accomplished by setting the rails with the usual moderate degree of obliquity, represented as exaggerated in the drawing. The switch is of a familiar kind.

The switch above the double track is exactly similar to the one below. A description of one will suffice for both. Each switch has two movable rails, *m m*, each pivoted at one end and wedge-formed at the other. They are connected by a cross-bar, *m'*, and controlled by a connection, *n*, to the lower arm of a loaded lever or tumbling-bar, P, which is hung at the point *p*, and loaded at its upper end, as represented.

It will be understood that the rails may be formed with splices, fish-joints, &c., and with any kind of guard-rails, elastic frogs, &c., which the exigencies of the situation or the importance of the business may warrant.

A car descending on the track A^1, on striking the lower switch acts, by its flanges, upon the switch-rails *m*, and shifts the switch. In effecting this movement, it first meets with a considerable resistance from the gravity of the loaded end of the lever P. The first part of the motion in shifting the switch raises this weight. The last part of the motion is effected without resistance, and may be, in some cases, materially aided by the gravity and momentum of the said loaded lever. When it has thrown the switch across, the gravity of the loaded lever P holds it there very firmly until the car returns, when it finds the switch open in the proper direction to guide it certainly and smoothly into the same part A^1 of the double track which it occupied in descending. But a moment later, another car descending on the track A^2 strikes the switch-rails with its flanges, and throws the switch into the opposite position, where it is again

held by the loaded lever until this second car returns, and is, by the switch, smoothly guided into the track A^2.

A similar operation has taken place meantime at the upper switch. Each car leaving the double track and going upon the single track adjusts the switch to direct it back again into the same path. The loaded lever acts reliably and certainly to hold the switch firmly, pressing against the rail on the proper side with just sufficient force, and ready to yield when necessary to the superior force received from the flanges of the car-wheel moving in the right direction to shift it.

o represents a spring, which serves as a medium to relieve the parts from the sudden powerful concussion.

Springs, acting more or less directly with sundry catches and inclined parts, may be used with some success; but the gravity of a loaded lever, as here shown, is more uniform and reliable.

Where it is necessary to throw the rails over rapidly by the motion of cars at high rates of speed, the loaded lever P may be made to yield either by mounting it on a fulcrum-pin, which is yielding within certain limits, or by making the whole lever P, or a part thereof, of leaves like a coach-spring. In such case the rail may move instantly to a sufficient extent to allow the car to pass, and the loaded end of the lever may fly over afterward.

I claim as my invention—

1. The tracks A A^1 A^2, in combination with the switch-rails *m m* and their connections, adapted to operate in such a manner that a car passing in one direction will automatically set the switch for its return on the same track, as herein specified.

2. The single track A, double track A^1 A^2, and switch-rails *m m*, connected, as shown, by the rods *m' m'*, in combination with the loaded lever P, the whole adapted to operate in such a manner that the respective cars traveling back and forth will automatically set the switch for their return, as herein specified.

3. The spring, in combination with the loaded lever P, and with the connections to the rails of a self-acting switch, as specified.

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Witnesses:

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ALVAH BEAN.