

No. 668,641.

Patented Feb. 26, 1901.

J. HARRINGTON.
RAILWAY SAFETY SWITCH.

(Application filed Dec. 1, 1900.)

(No Model.)

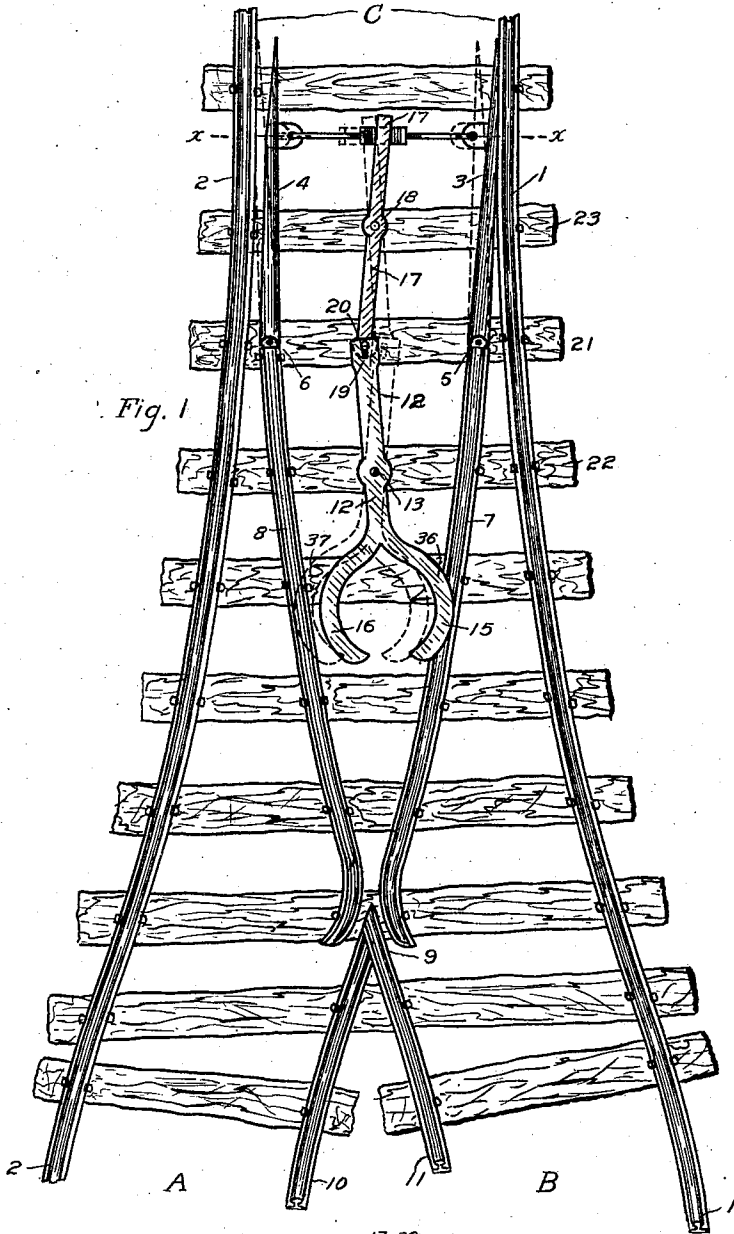


Fig. 1

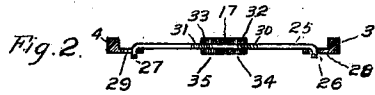


Fig. 2

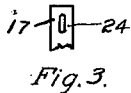


Fig. 3

WITNESSES:

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JOHN HARRINGTON, OF SCRANTON, PENNSYLVANIA.

RAILWAY SAFETY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 668,641, dated February 26, 1901.

Application filed December 1, 1900. Serial No. 38,324. (No model.)

To all whom it may concern:

Be it known that I, JOHN HARRINGTON, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Railway Safety-Switches, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to switches of railways, such as are adapted to be operated by the moving car, and has for its objects to alternate such switches between two given tracks, to provide a switch which will allow but one car at a time to enter a given track, to provide against accident to railway-cars, and to simplify and improve such switches in general.

To these ends the invention consists of the construction, arrangement, and combination of the several parts, as herein set forth, and illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of several railway-tracks in connection with my improved safety-switch and indicating the operation thereof. Fig. 2 is a view, partly in cross-section, taken on the line *xx* of Fig. 1, showing in detail part of the operating mechanism. Fig. 3 shows a detail of one of the levers.

Similar characters of reference denote like and corresponding parts in the views.

Referring to the drawings, A and B denote two separate tracks on which cars are to be run from the main track C, the outer rails 1 and 2 of the A and B tracks becoming the right and left rails, respectively, of the C track. The other rail 7 of the A track communicates with the rail 1 by means of the switch-point 3, pivoted to one of the ties 21 at 5, and the other rail 8 of the track B communicates with the rail 2 by means of a similar switch-point 4, pivoted to the tie 21 at 6. The switch-points 3 and 4 are adapted to be operated in unison from the right to the left, and vice versa, by means of a system of compound levers, exemplified in the present drawings by the bifurcated lever 12, swinging on the pivot 13 on the tie 22 and having a sliding pivotal connection with the lever 17, which also has a pivotal connection at 18 to the tie

23. The pivotal connection between the two levers is made by means of a pin 20, rigidly secured to the end of the lever 17 and adapted to extend through the slot 19 of the lever 12, the slot being provided so as to compensate for the swinging motion of the levers in the operation of the device. A similar slot 24 is provided in the end of the lever 17, where it joins with the switch-bar 25, which is connected at its ends 26 and 27, respectively, to lugs 28 and 29 of the switch-points 3 and 4. Portions of the switch-bar 25 are screw-threaded at 30 and 31 and provided with nuts 32 and 33. Interposed between the nuts 32 and 33 and the end of the lever 17 is a pair of coiled steel springs 34 and 35, respectively, or, if preferred, the steel springs may be substituted by thick washers made of india-rubber or other springy substance, so as to allow compensation in case dust or other substance should become clogged between the rails and the switch-points, and thus prevent successful operation of the switch or cause breakage.

The operation of the device is readily explained. The bifurcations 15 and 16 of the lever 12 extend to the right and left a distance about equal to the width between the rails 7 and 8 in that vicinity. These bifurcations are rounded or curved at their outer edges, so as to form a sliding engagement with the flange of a car-wheel running on the adjacent rail. When, for example, the switch is turned so as to run across from the C track to the A track, the bifurcation 15 of the lever extends partly over the track 7, and the flange of the car-wheel running on the track 7 will consequently strike the said lever in the vicinity of 36, thus driving the lever to the position shown in dotted lines, whereby the bifurcation 16 is made to extend partly across the track 8, and the switch-points are both shifted to the position shown in dotted lines, whereby the next car coming from the track C will be switched to the track B. The distance between the front and rear wheels of the car to be used in this switch should be about equal to the distance on the rail from the pivoting-points 5 and 6 to that part of the rails where the bifurcations 15 and 16 extend over them. The device is intended to be used with four-wheeled cars only, and it is neces-

sary that when the front wheel of the car strikes the point 36 the rear wheel will be at or about the pivot 5, while the front wheel of the next succeeding car will not have reached the further ends of the switch-points, so that when the front wheel of the car has operated the lever the immediately - following car, if there be one, is thereby switched to the opposite track B, and the bifurcation 16 of the operating-lever now extending over the track 8 a car coming in on the track B by striking the bifurcation in the vicinity of 37 will again reverse the switch to the position shown in full lines, whereby the succeeding incoming car will be now switched to the track A. It is necessary that the length of the switch-points be limited, so that the cars on which they are to be operated will not have run onto the switch - points before the car ahead has operated the switch. By the use of this device it is therefore evident that a succession of cars, such as are used about the mines, will become switched alternately, one to the right and one to the left, so that where a double hoisting-shaft is used, with carriages corresponding to the A and B tracks, respectively, and where the full cars are hoisted on each side alternately, my improved switch becomes self-serving, so that the attendants are not crowded with cars on any one track faster than they can be disposed of. In any mine where the device is to be used the foot of the shaft is likely to be at the end of an incline, where possible runaway blocks of coupled cars may be precipitated down the hoisting-shaft. My device provides a safety in such cases by switching the head cars on opposite tracks, causing them to overturn and form an obstruction, blocking further progress.

I do not wish to be confined to the exact construction shown and described, as many of the details may be varied without departing from the general spirit of the invention.

What I claim, and desire to secure by Letters Patent, is—

1. In a railway-switch a pivoted bifurcated lever having bifurcations extending to separate rails, a second lever also pivoted and having a slotted or sliding pivotal connection at one end with an end of the first lever, a switch-bar connected at the other end of said second lever and a pair of pivoted switch-points connected to the opposite ends of said switch-bar and adapted to transmit motion

to the said switch-points from the levers aforesaid, substantially as specified.

2. A railway alternating switch comprising a pair of horizontal levers, each pivotally mounted and operating on separate fixed pivotal points, a pair of switch-points adapted to swing into proximity with opposite rails of the main tracks, a switch-bar connecting the said switch-points so as to make them swing in unison, one of the horizontal levers aforesaid having a slotted pivotal connection to said switch-bar, and the other lever having legs or bifurcations extending to opposite rails and adapted to be operated upon by the wheels of moving cars so as to move the switch in either direction, and to the reverse track from that on which the car is running which operates it, substantially as specified.

3. In a railway-switch, the combination of several levers pivotally mounted and adapted to operate in a substantially horizontal plane, the ends of said levers connected so that the operation of the one operates the other, and one of said levers connected to a switch-bar adapted to operate the switch-points in unison, and the other of said levers having a bifurcated end, the bifurcations thereof extending to separate rails of the tracks, whereby the latter motion is transmitted thereto by the wheels of moving cars and transmitted through the levers to the switch-points as specified.

4. In a railway-switch a pivoted bifurcated lever having bifurcations extending to separate rails, a second lever also pivoted and having a slotted or sliding pivotal connection at one end with the end of the first lever, a switch-bar connected at the other end of said second lever and a pair of pivoted switch-points connected to the opposite ends of said switch-bar and adapted to transmit motion to the said switch-points from the levers aforesaid, and the said switch-bar having disposed thereon at opposite sides of the connecting end of the lever a pair of springs or rubber washers to permit of yielding in the case of obstruction to the switch-points, substantially as specified.

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

JOHN HARRINGTON.

Witnesses:

D. G. MORAN,
A. R. BRUNING.