W. W. COLLEY.

Railway-Switch.

No. 164,523. Patented June 15, 1875.

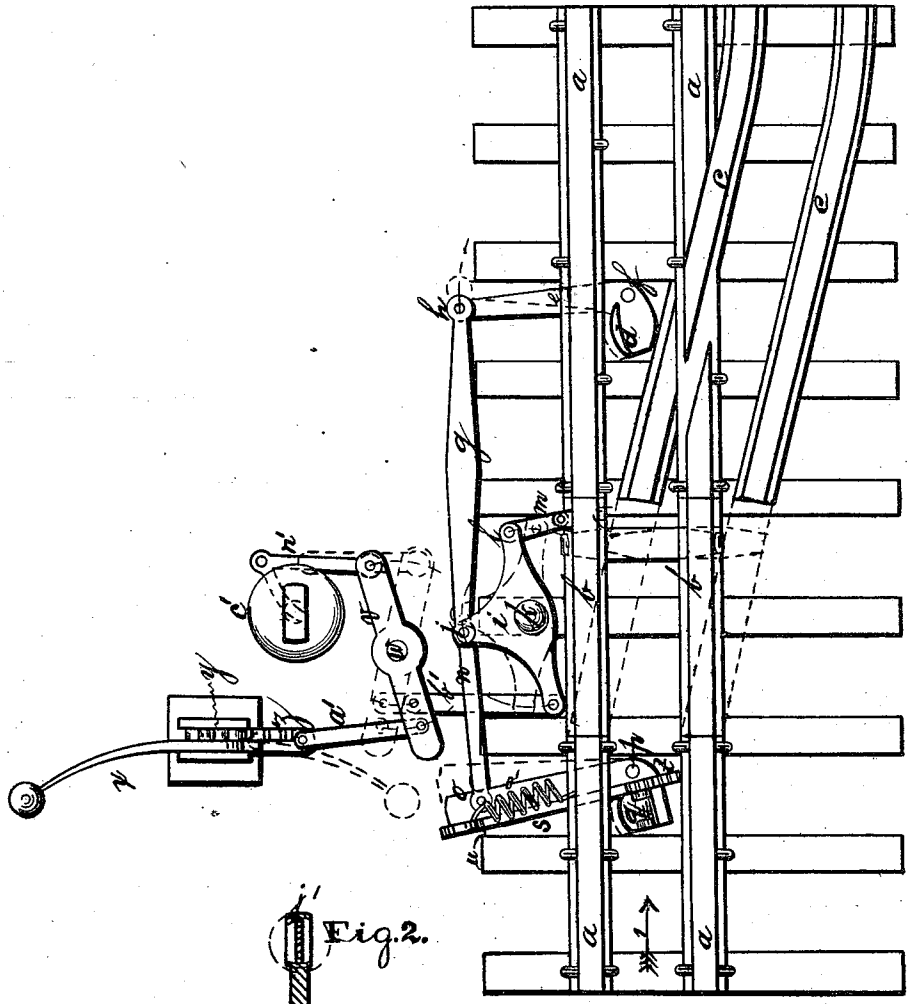

Fig. 1.

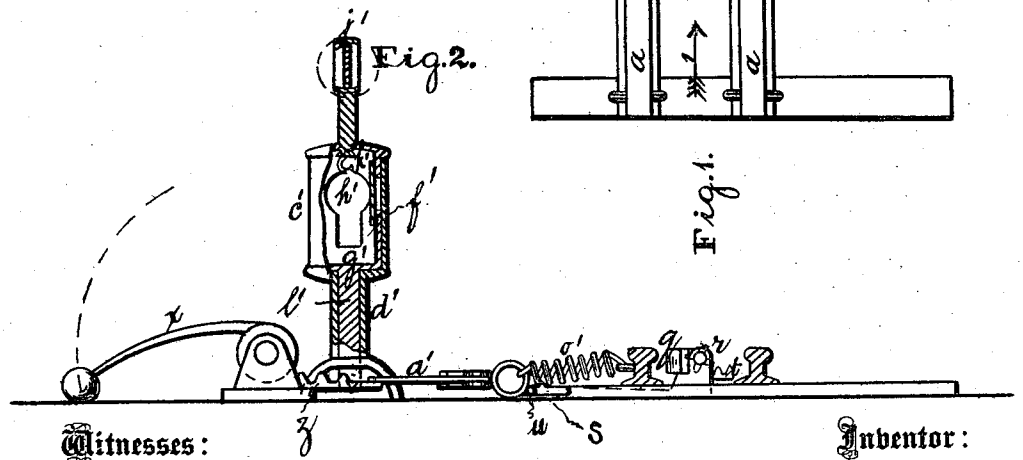

Fig. 2.

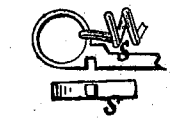

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM W. COLLEY, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN RAILWAY-SWITCHES.

Specification forming part of Letters Patent No. **164,523**, dated June 15, 1875; application filed April 28, 1875.

To all whom it may concern:

Be it known that I, WILLIAM W. COLLEY, of Philadelphia, Pennsylvania, have invented an Improvement in Switches for Railroads, of which the following is a specification:

My invention consists, first, in the movable cam, which is arranged between the rails of the main track to be in line with the siding when the latter is connected with the former by the switch; second, in the arrangement of two cams, respectively located at or near the ends of the switch, between the rails of the stationary main track, near one of said rails, in combination with a system of levers designed to bring the switch into direct line with the main track by the automatic action of the wheels of cars approaching said switch on the main track from either direction, as hereinafter described.

In the drawings, Figure 1 represents a plan of a main track and siding, and the switch or movable section of the track, showing the signal-box and the cams and levers employed for operating the switch and signal-box; Fig. 2, an end elevation, showing the signal-box partly in section; Fig. 3, side and edge elevations, respectively, of the lever *s*, showing the notch or recess in said lever for securing it in place.

In Fig. 1, *a* represents the main track; *b*, the movable section or switch, and *c* the siding. *d* is a cam rigidly attached to the short arm of the angular lever *e*. Said cam projects up to about the level of the top of the adjacent rail. This cam *d* is curved on its face, forming the segment of a circle. Instead, however, of constructing it as shown, it may be an ordinary friction-roller, working on a stud or upright projection from the lever *e*. The lever *e* is pivoted at *f*. *g* is a lever, flexibly attached to the lever *e* at *h*, and also to the lever *i* at *j*. The lever *i* is pivoted at *k*, and flexibly attached at *l* to a short lever, *m*, which is flexibly attached to the movable end of the switch *b*. *n* is a lever, flexibly attached at one end to the lever *i* at *j*, and at its other end to the long arm of the angular lever *o*, which is pivoted at *p*. *q*, Figs. 1 and 2, is a hinged cam, the bearings of which project up from the short arm of the lever *o*. *r*, Fig. 2, is a pinion arranged on the bolt or shaft of the cam *q*, said bolt or shaft being extended a little for this purpose. *s*, Fig. 1, (shown partly broken away in Fig. 2,) is a bar or hand-lever, which is passed under the rail. The inner end of the lever *s* forms a rack, *t*, which engages the pinion *r*. Near the outer end of the lever *s* there is formed a notch or recess, *u*, Fig. 2, which is caused to catch upon a corresponding stud projecting from the lever *o*. *v*, Fig. 1, is a lever, pivoted at *w*. *x*, Fig. 1, is an ordinary switch-lever, provided with the pinion *y*, working in the rack *z*, which is connected, by a link, *a'*, with one end of the lever *v*. *b'* is a link connecting the lever *v* with the lever *i*.

The movable cam *q* is reversed or turned over on its hinges by means of the hand-lever *s*, and held in that position, out of the way of the wheels, while the train moves onto the siding, when the lever *s*, being released, is drawn back by the action of the spring *o'*, the cam *q* being thus brought back again into its normal position with relation to the rail, as shown in Fig. 2. The notch *u* in the hand-lever *s* is caused to rest on its catch, and the cam *q* is thus locked. The switch being now in line with the siding, and the main line thus broken, if a train on the main track should approach the switch from either direction, and the switch-tender neglect to restore the continuity of the main track by turning the switch-lever *x* into the position shown in Fig. 2, this result is effected by the train itself, the flanges of the locomotive or other car-wheels pressing between the rail and the cam, (either *d* or *q*, as the case may be,) through the action of the connecting-levers described, automatically bringing the switch into direct line with the main track.

I claim—

1. The cam *q*, movable in its bearings, arranged, with relation to the main track, as shown, in combination with the hand-lever *s*, whereby the position of said cam with relation to the rail is changed, and cars are allowed to pass onto the siding without affecting the levers employed to operate the switch, substantially as set forth.

2. The combination of the main track *a*, the cam *d*, fixed in its bearing, the movable cam *q*, the switch *b*, and a system of levers for connect-

ing said cams with said switch, whereby the switch is automatically or by hand brought into direct line with the main track, whether the car approaches from one or the other direction on said main track, substantially as set forth.

3. The combination of the main track *a*, the cam *d*, fixed in its bearings, the switch *b*, and a system of levers for connecting said cam *d* with said switch, whereby the switch is automatically or by hand brought into direct line with the main track when the car approaches the switch from the direction of said cam *d*, substantially as set forth.

WILLIAM W. COLLEY.

Witnesses:
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