

(No Model.)

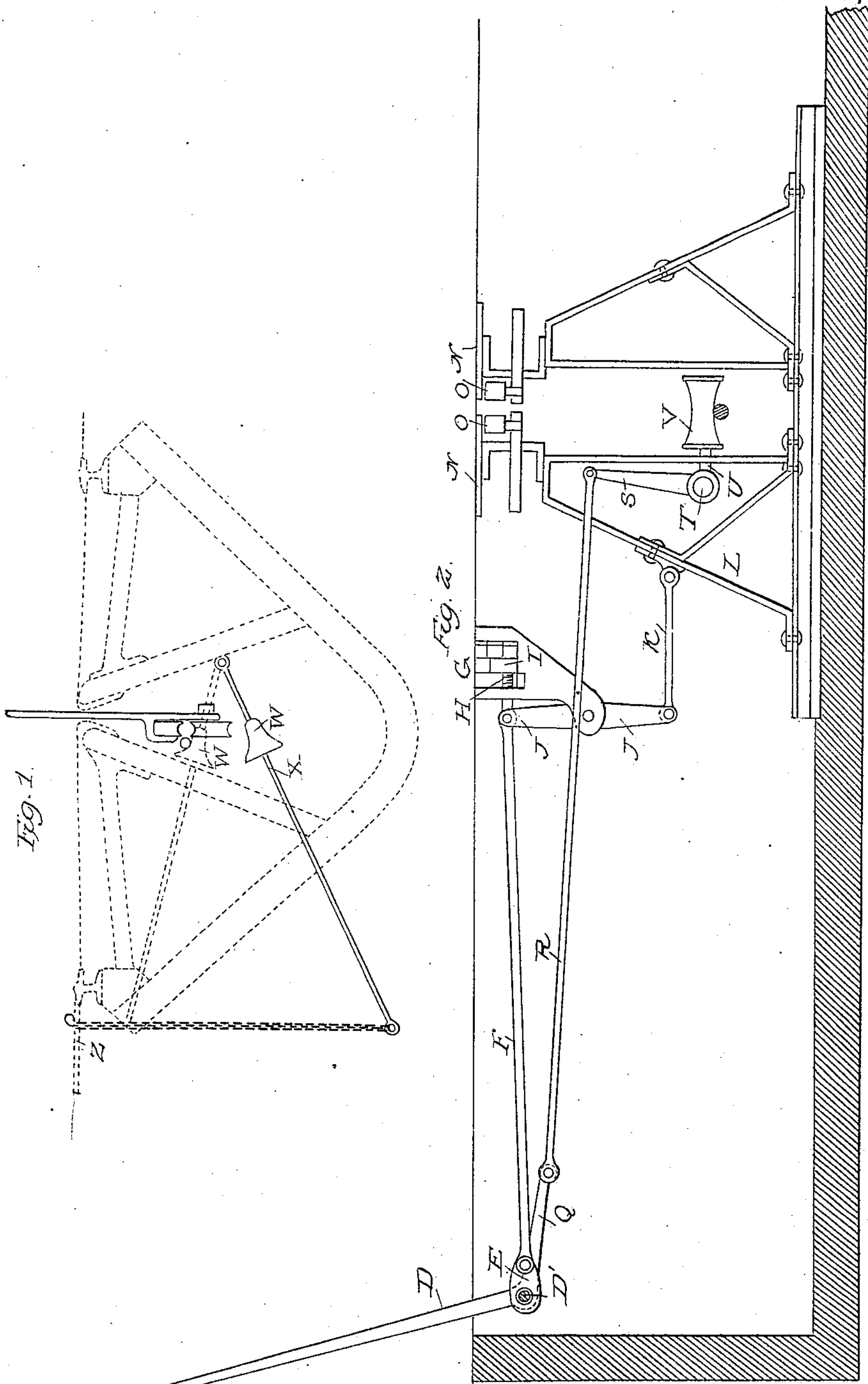
2 Sheets—Sheet 1.

H. ROOT.

SWITCHING DEVICE FOR CABLE RAILWAYS.

No. 309,983.

Patented Dec. 30, 1884.



Attest:
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Walter Keene

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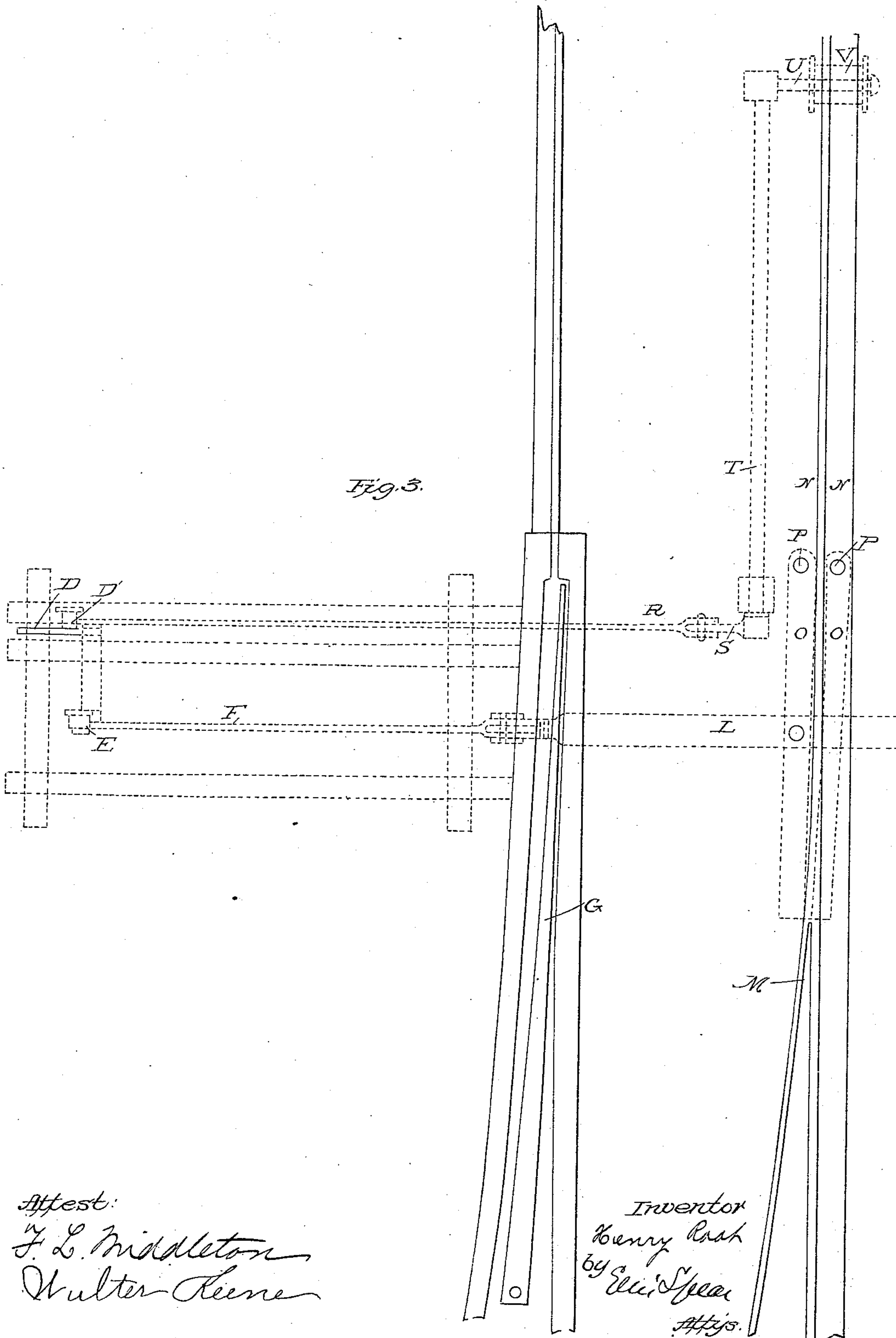
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UNITED STATES PATENT OFFICE.

HENRY ROOT, OF SAN FRANCISCO, CALIFORNIA.

SWITCHING DEVICE FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 309,983, dated December 30, 1884.

Application filed July 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY ROOT, of San Francisco, in the county of San Francisco and State of California, have invented a new and useful Improvement in Switching Devices for Cable Railways; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to certain improvements in cable railways; and it consists in means for moving the slot-irons in unison with the switch-rails where a branch line departs from the main line, and means for elevating the traveling cable into the grip.

In the accompanying drawings, Figure 1 is a view of the device by which the cable is raised from its pulley to the grip. Fig. 2 is a transverse section of part of the street, tube, rails, slot-irons, and switch mechanism. Fig. 3 is a plan of the same.

In some cases, where a branch road joins the main one, so that the cars from the branch continue their course upon the main line, or arriving on the main line, at the junction the grip must leave the main cable and take the branch one, it is necessary to employ a permanent mechanism forming a part of the road, to make the slot continuous either with the main line or with the branch simultaneously with the movement of the switch-rails. In order to do this a lever, D, is fixed to a horizontal shaft, D', just below the surface of the roadway at one side of the track. This shaft has two lever-arms secured to it—one at each end. The short one, E, has a rod, F, connecting it with a tongue, G, of the switch-rail by means of a screw-pin, H, which enters a lug, I, projecting below the rail, and when the lever D is raised up from its ordinary horizontal position the tongue G will be pushed over, so as to guide the wheels of the car from the main upon the side track.

At the point where the rod F connects with the screw-pin H it also connects with the upper end of a lever, J, which is fulcrumed, as shown, about the center, and the lower end of this lever is connected by a rod, K, with the frame L, which is mounted to slide transversely across the tube, and will by this lever be moved in an opposite direction from the switch-rail.

At the junction of the main and side line grip-slots is a permanent triangular piece or tongue, M, and just in front of and beneath this and the slot-irons N are two strong bars of iron, O, having a space between them equal to the width of the slot beneath which they lie. The ends farthest from the tongue M are permanently pivoted, as shown at P, and the central portion of the bars are pinned to the transversely-sliding frame L. The free ends of the parallel bars extend to or beneath the tongue M, and, when the lever D is lifted, the movement thus communicated to the frame L and the bars O moves them from a line parallel with the main track into a line parallel with the side track, so that when the grip approaches it will be guided into the branch slot at the same instant when the wheels are guided upon the rails of the branch line. The second lever-arm, Q, which projects downward from the shaft D', is connected by a rod, R, with a crank-arm, S, fixed to a shaft, T, which extends along the tube at one side of the line in which the cable travels. Upon the opposite end of this shaft is an arm, U, having a roller, V, upon it. When the lever D lies flat and the parts are all in position to allow the car to pass upon the main line, this roller is held upright in the tube; but when a car approaches which is to pass upon the branch line the lever D is lifted up, the switch-rail tongue G and the supplemental slot-irons O move, so as to guide the wheels and grip to the branch line. The main cable is depressed by the roller V, which is moved down into a horizontal position, and thus depresses the cable below the line of the grip. The grip-man lets go of the cable at an indicated point before reaching the switch, and the car runs by its own momentum upon the branch line, the grip being allowed to cross the cable at the depressed point. When the car has reached a point where it is necessary to pick up the cable of the branch line after the car leaves the main line, or the cable of the main line after the car has reached the main line from the branch one, the cable must be raised from the bearing-pulleys upon which it runs to the level of the grip, which travels high enough to clear the pulleys. This is done and the cable is directed into the opened jaws of the

grip by a conical pulley, W, revolving loosely upon an arm, X, which has one end journaled at one side by a shaft, Y, parallel with the rope. The other end has a chain which passes
 5 up through a hole in the cover Z in the top of the tube, and has a ring or handle by which it can be pulled up. This brings the pulley in contact with the cable, raises the latter until it slides off the tapering end of the pulley
 10 into the grip-jaws.

Having thus described my invention, what I claim is—

1. A switch and safety device consisting of a movable tongue for guiding the car-wheels
 15 upon a branch line, a pair of parallel tongues pivoted so as to extend along upon each side of the main-tube slot, with the free ends at or near the junction of the main and branch slots, and mechanism, substantially as described,
 20 operated by a single lever, by which the slot and rail-tongues are caused to move in unison, substantially as described.

2. In a cable railway, a device for raising and for pressing the cable to one side at the

same time, so as to carry it around the bottom 25 of the grip and cause it to fall between the jaws, consisting of a lever hinged at one side above the ordinary height of the cable, and extending downward across the tube beneath the cable, and a means by which the outer end 30 of the lever may be raised, substantially as described.

3. A means for depressing the cable to allow the grip to cross it, consisting of a shaft journaled to stand parallel with the cable, an 35 arm projecting at right angles from said shaft, with a roller upon the end thereof, and mechanism, substantially as described, by which the shaft may be turned so that the arm will depress the cable or be turned up out of the 40 way, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY ROOT.

Witnesses:

F. L. MIDDLETON,
 L. C. YOUNG.