

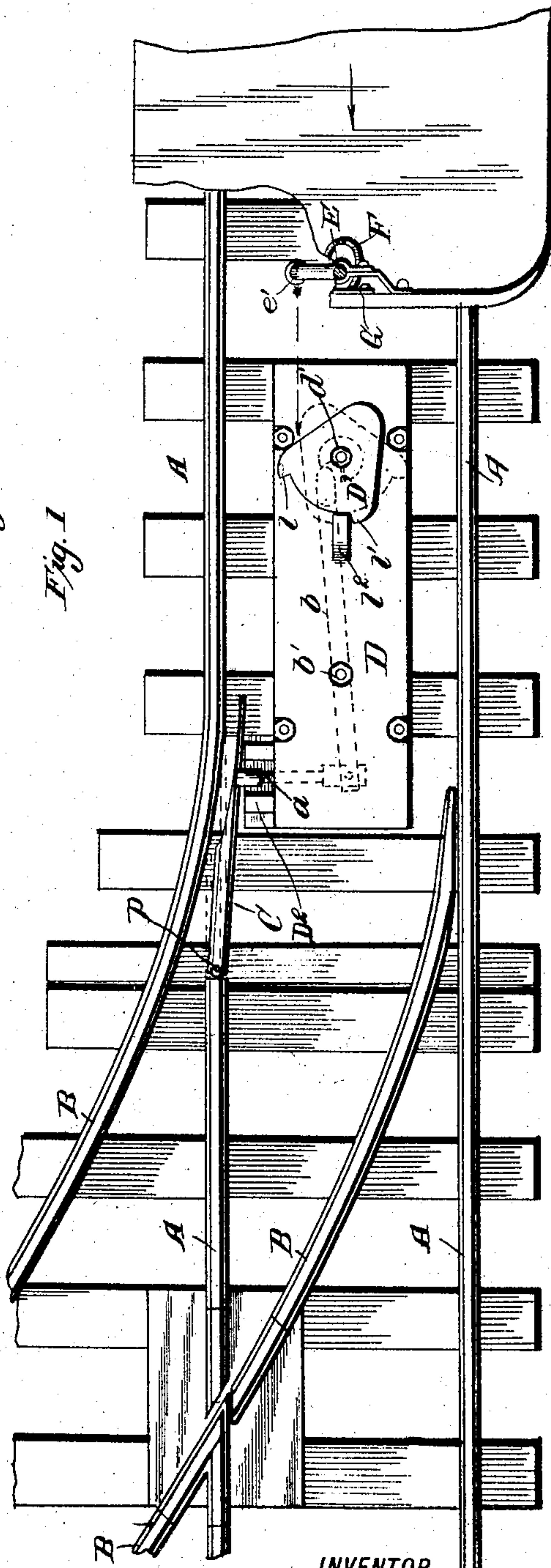
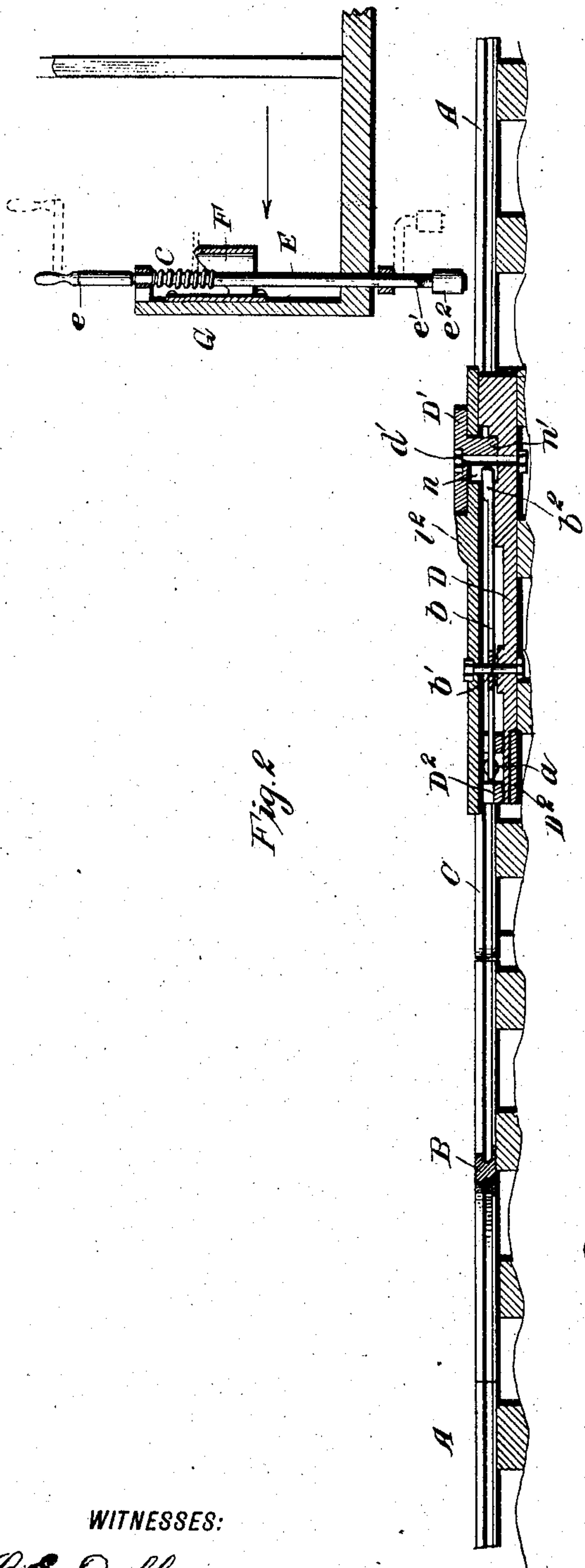
No. 780,410.

PATENTED JAN. 17, 1905.

G. CURRIER.
AUTOMATIC RAILROAD SWITCH.

APPLICATION FILED JUNE 17, 1904.

2 SHEETS—SHEET 1.



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GOFF CURRIER, OF ST. PAUL, MINNESOTA.

AUTOMATIC RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 780,410, dated January 17, 1905.

Application filed June 17, 1904. Serial No. 212,993.

To all whom it may concern:

Be it known that I, GOFF CURRIER, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Automatic Railroad-Switches, of which the following is a specification.

My invention is in the nature of an improved automatic railroad-switch designed more particularly for rapid-transit street-railways, but applicable also to all kinds of rail-
ways.

It relates to that form of railroad-switch in which the switch is connected to and operated by a movable device in the road-bed which is struck by a projection on the car as it passes over said device, whereby the switch is automatically adjusted by the passage of the car without having to stop and adjust the switch by hand.

My invention consists in the novel construction and arrangement of the parts of the device operating upon the above-named principle, which will be hereinafter fully described with reference to the drawings, in which—

Figure 1 is a plan view of the road-bed with the switch in place. Fig. 2 is a vertical longitudinal section taken partly through the car and the road-bed. Fig. 3 is a top view of the switch and switch-box with the top removed. Fig. 4 is an inside perspective view of the operating crank-shaft, and Figs. 5 and 6 are details.

In the drawings, A A are the main rails, BB the siding-rails, and C the movable switch-tongue pivoted at *p* and whose position permits the car to pass on straight over the main rails or to turn out to the siding-rails. The position of this switch-tongue is controlled by my devices as follows: D is a boxing of suitable size and shape arranged longitudinally in the road-bed between the main rails and provided with a detachable cover held on by suitable bolts and nuts or screws. Within this boxing is arranged a horizontal vibrating lever *b*, fulcrumed at *b'* in the boxing and pivoted at one end to the shifting rod *a*. This shifting rod may extend on one side of the lever *b* and be connected to the switch-tongue on that side, or it may extend on both sides

of the lever, as shown in Fig. 5, and be connected to switch-tongues on both sides. At the other end the lever *b* is provided with an enlargement *b²*, which is received into a notch *n*, Fig. 6, in the lower portion of a cam-block D', having a vertical pivot *d'*. This notch is formed in a circular boss *n'*, and this boss fits in a circular hole in the top of the switch-box, the upper portion of the cam-block resting above the cover of the switch-box and being of a somewhat triangular shape, with stop-lugs *l l'* located on opposite sides at its wide end, which alternately take up against a lug *l²* on the cover of the switch-box and limit the throw of the cam-block from side to side. When this cam-block is thrown over to one side, it, through the notched boss beneath, turns the lever *b* and moves the shifting rod *a* and switch-tongue C in one direction, and when the cam-block is thrown to the other side it throws the same parts in the other direction, thus sending the car straight forward on the rails A A or off to one side on the siding-rails B B, according to the direction of movement of the cam-block.

The cam-block is shifted from one side to the other by a projection on the car under the control of the motorman, which I will now describe.

At the end of the car just inside the dashboard there is a vertical shaft E, journaled in suitable bearings and having at its upper end a crank-handle *e*, by which it may be turned. At the lower end it has a lateral crank extension *e'*, armed with an antifriction-roller *e²*, which is adapted to strike against the cam-block and deflect it. The position of this antifriction-roller determines which side of the cam-block it shall strike against and which direction it shall move the switch, and for this purpose the antifriction-roller may be thrown from one side to the other of the shaft E by means of the crank-handle *e* at the upper end. The shaft E is embraced by a cam-flange F, attached to a plate G, secured to the dashboard. The shaft E has a rigidly-projecting arm *e³*, which rides on the top of the cam-flange. A coil-spring *c* surrounds the shaft E and presses downwardly against the arm *e³*. The cam-flange is made lowest on the side

next to the dashboard and on the opposite side has a high ridge with a notch in the middle of it. When the crank and the antifriction-roller are on one side of the shaft E, the arm e^3 is on the low side of the cam-flange and resting against the dashboard; but when the crank is turned a half-revolution the arm rides up on the high part of the cam-flange and drops down again as it reaches the low side and comes to a stop, with the arm e^3 on the opposite side from what it was before and in position to enable the antifriction-roller to act upon the opposite side of the cam-block D', so as throw the switch in the opposite direction. As the shaft E turns through this movement it rises against the tension of the coil-spring and is again forced down by it. After the switch has been thrown if the shaft E be turned half-way back, so that the arm e^3 will rest in the notch on the high side of the cam-flange, the shaft E will be raised bodily, as in dotted lines in Fig. 2, and be held up, with the antifriction-roller at the lower end lifted high enough to escape the rail of the main track as the car passes over the same on to the siding-rails.

To permit my devices to be applied to either right-hand or left-hand switches, the switch-box is so made as to allow the shifting rod a to emerge from either side, and for this purpose the box or casing D is made with a head or extension D², projecting laterally at one end, which head may be removed from the longitudinally-arranged casing and be readjusted to the same on the other side.

The main box or casing is made with its bottom portion preferably cast in one piece with a flange f , by which it is secured to the cross-ties, and with vertical marginal walls f' , which form a recess or chamber between them to receive the lever, and on these marginal walls the detachable cover fits and is secured by bolts or screws, as before described.

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

1. An automatic railroad-switch, comprising a switch-tongue, a horizontal lever, a shifting rod connecting said lever to the switch-tongue, a casing for the lever arranged in the road-bed between the rails and a cam-block arranged in the casing to turn about a vertical axis and having inside the casing a boss with a notch receiving the end of the lever and hav-

ing a double cam-face above the casing with stop devices for limiting the throw of the same, said cam-block being arranged to be acted upon by a projection from the passing car substantially as described.

2. An automatic railroad-switch, comprising a switch-tongue, a horizontal lever, a shifting rod connecting said lever to the switch-tongue, a casing for the lever arranged in the road-bed between the rails, a cam-block arranged to turn in the casing and having its lower end notched to receive the end of the lever and having its upper portion formed with two cam-faces, stops for limiting the throw of the cam-block and a vertical crank-shaft having a lateral extension at its lower end adapted to bear against either side of the cam-block according to the position of the crank-shaft substantially as shown and described.

3. In an automatic railway-switch, the combination with the switch-operating mechanism and the cam-block for the same located in the road-bed; of a vertical crank-shaft having a lateral extension at its lower end, a spring for holding the shaft down and a cam-flange embracing the shaft and adapted to lift and hold the said crank-shaft in an elevated position substantially as described.

4. In an automatic railway-switch, the combination with the switch-operating mechanism, and the cam-block for the same located in the road-bed; of a vertical crank-shaft having a lateral extension at its lower end, a cam-flange embracing the shaft, an arm on the shaft riding on the cam-flange and a spring for holding the shaft down, said shaft being arranged to rock to reverse the position of the projection on the lower end and also to move vertically substantially as and for the purpose described.

5. In an automatic railroad-switch, the combination with the switch-tongue, the shifting rod attached thereto and the lever working the shifting rod; of a casing formed with a base-flange, a marginal wall and a removable cover, and a laterally-projecting head or extension for the casing arranged to be applied to either side of the casing substantially as described.

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Witnesses:

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