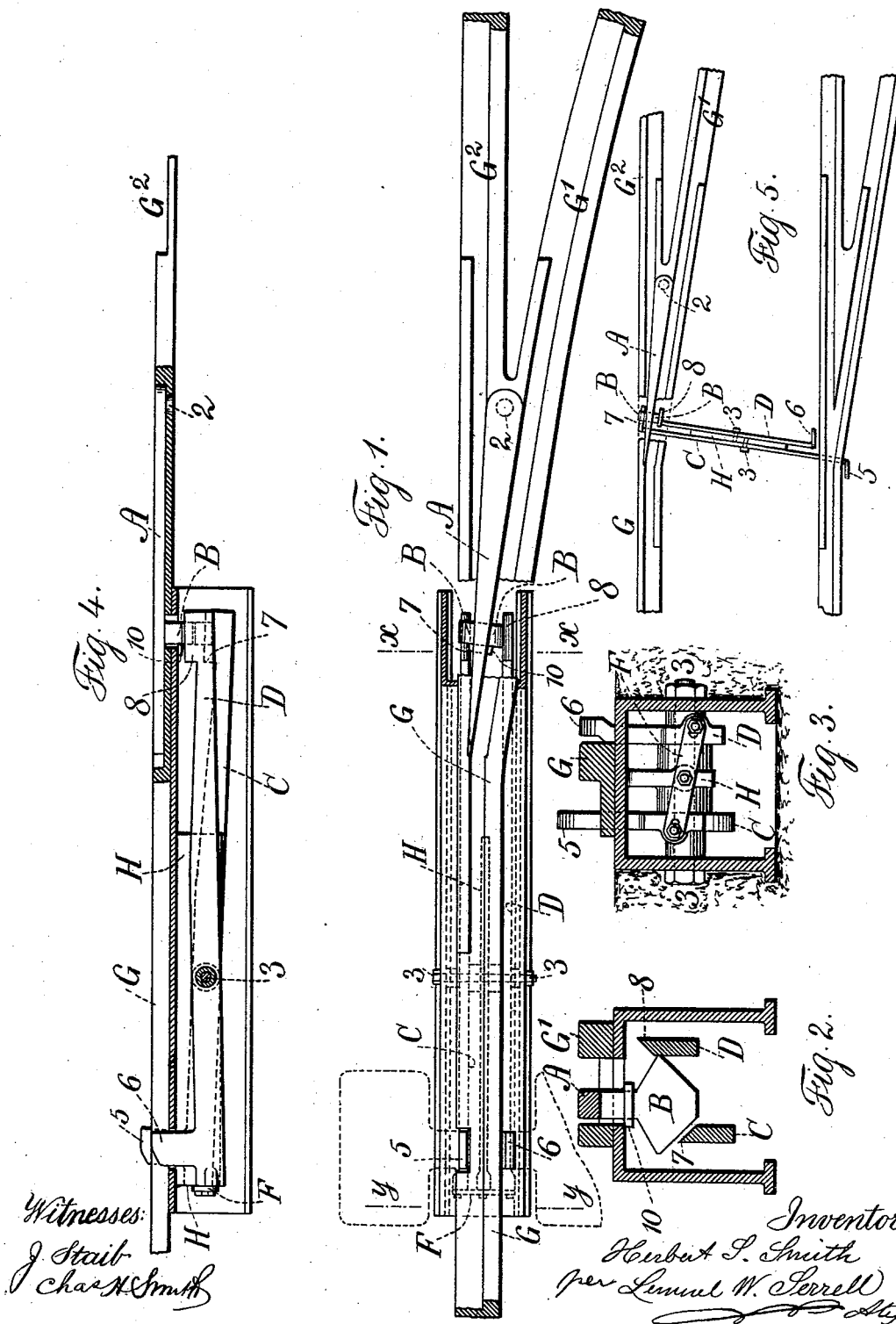


(No Model.)

H. S. SMITH.
SWITCH POINT FOR STREET RAILWAYS.

No. 523,154

Patented July 17, 1894.



UNITED STATES PATENT OFFICE.

HERBERT S. SMITH, OF BROOKLYN, ASSIGNOR TO HIMSELF, AND FRANK E. KNIGHT, OF NEW YORK, N. Y.

SWITCH-POINT FOR STREET-RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 523,154, dated July 17, 1894.

Application filed January 15, 1894. Serial No. 496,904. (No model.)

To all whom it may concern:

Be it known that I, HERBERT S. SMITH, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Switch-Points for Street-Railways, of which the following is a specification.

In street railways turnouts are frequently provided for branch lines passing off at different streets and a switch point is made use of that requires to remain in its normal position for the main line and to be turned for directing the cars upon the branch route. Many of these switch points are turned by hand, as difficulty has been experienced in providing a simple, reliable and efficient automatic device for moving the switch point. The automatic switch points heretofore proposed have usually been either complicated and expensive or liable to easy derangement.

In my present improvement there is a downwardly projecting double incline upon the switch point, and adjacent to the same are levers having inclines that engage the double incline upon the switch point to move the same in one direction or the other, and the switch is locked by the flat portion of the lever coming against the end of the incline, so that the switch point remains immovable until the lever is thrown down out of action and the other lever elevated.

In the drawings, Figure 1 is a diagrammatic plan view representing a portion of the track in section. Fig. 2 is a cross section at the line *x x*, and Fig. 3 is a cross section at the line *y y*, both in larger size, and Fig. 4 is an elevation partially in section and longitudinally of the track, and Fig. 5 is a diagram illustrating the levers transversely to the track.

The switch point A is pivoted at 2 upon a suitable plate as usual, and it is provided with a downwardly projecting double incline B which is in a suitable mortise in the supporting plate of the switch or frog, and the levers C D are pivoted at 3 to the central support H beneath the switch plate or frog, and the lever D is shown as below one of the track rails in Figs. 1 and 4, which rails are of any desired character, and at G' one rail of

the turnout or branch railway is represented, and G² is the continuation of the main line rail beyond the switch point A; and it is to be understood that when the switch point is in the normal position, the main or straight track is open, and when the switch point is moved away from the rail G the car is directed by the switch point upon the branch or turnout.

The levers C and D are to be of suitable length and inclosed in a box or case beneath the track, the bottom of the box preferably being open, as illustrated in Fig. 2, to prevent accumulation of water, snow or ice, and the back ends of the levers C D are connected together by a cross lever F pivoted upon the support H and slotted at the connections to the levers C and D, and these levers C D are provided with projections 5 and 6 at or near their ends that pass through openings in the top of the box and adjacent to the rail G, and one projection is elevated as the other is depressed, and at or near the other ends of the levers C D are upward projections 7, 8 that are adjacent to the double incline B that projects down from the switch point, and the portions of the projections 7 and 8 that are adjacent to the double incline B are inclined so that when one lever is raised and the other lever depressed, the incline upon the lever that is raised moves the switch point and then the straight face of the projection 7 or 8 comes adjacent to the end of the incline B and thereby holds the switch point so that the wheels running over or adjacent to the switch point cannot move the same laterally, hence the switch point is locked during the final part of the movement of the lever after the point has been moved, and when the reverse movement is given to the parts the straight face of the projection 7 or 8 is first moved away from the side of the incline B before the switch point is moved by the contact with the incline B of the other projection 7 or 8, there being a sufficient space between the respective inclined surfaces to allow for this movement.

The projection 5 or 6 is to be acted upon either by the wheel of the car, by a specially provided wheel or by a downwardly projecting incline or roller upon the car that may be

under the control of the motorman or driver and be brought into contact with the proper projection 5 or 6 according to the direction in which the switch is to be set and held.

5 If desired, the projections 5 and 6 may be so located as to be acted upon automatically by the devices on the car so as to set or hold the switch point according to the track upon which the car is to travel.

10 This improvement is well adapted to city railways having a complicated system of turn-outs, because the projections 5 and 6 can be easily varied in position to be acted upon by the respective cars and the cars can be directed either to the right or left as required.

15 Where the levers are at an inclination or stand transversely of the track, as shown in Fig. 5, the switch point can be moved by a projection on the front end of the car immediately before the wheels reach the switch. In this case the end portions 7 and 8 instead of being in line with the levers are at right angles to them and form T heads.

20 By my improvement springs are dispensed with, the levers are direct acting and are moved vertically so as to be easily turned by direct pressure from the actuating device, and the risk of obstruction by snow or ice is reduced to a minimum, and there are in substance but three operative parts to the switch moving device, so that it is very cheap and inexpensive; and in cases where the present improvement is to be employed with horse-cars, the projections 5 and 6 may be provided with platform plates extending out laterally, as represented by dotted lines, so as to be adapted to receiving motion by being stepped upon by the horses as they may be driven so as to pass over either one projection or the other as now usual in some characters of switches that are provided for horse-cars.

40 The levers C D being pivoted near the middle and moving vertically can be made to bal-

ance and hence can be moved with but little power.

45 By providing a lip or flange at 10 adjacent to the incline B and below the top of the inclosing case, the switch point is held down so that it cannot be lifted by the upward pressure of the inclined ends of the levers.

50 I claim as my invention—

1. The combination with the switch point having a downwardly projecting double incline, of the levers pivoted below the track and having inclines that act against the double incline of the switch point, and a cross lever connecting the two levers at one end, substantially as set forth.

2. The combination with a switch point having a downwardly projecting double incline, of two levers running longitudinally of the track and having inclines that act against the double incline of the switch point, an inclosing box in which the levers are pivoted, and a cross lever pivoted within the box and provided with slots and connections to the rear ends of the longitudinal levers, substantially as set forth.

3. The combination with the rails, of a switch point having a downward projection with inclines upon its lower edges and a flange to prevent the moving end of the switch point being lifted, two pivoted levers having inclines at one end that act on the inclined surfaces of the projection from the switch point and upward projections at the other ends of the levers to be acted upon by the passing car to move the switch point, substantially as set forth.

Signed by me this 10th day of January, 80 1894.

HERBERT S. SMITH.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.