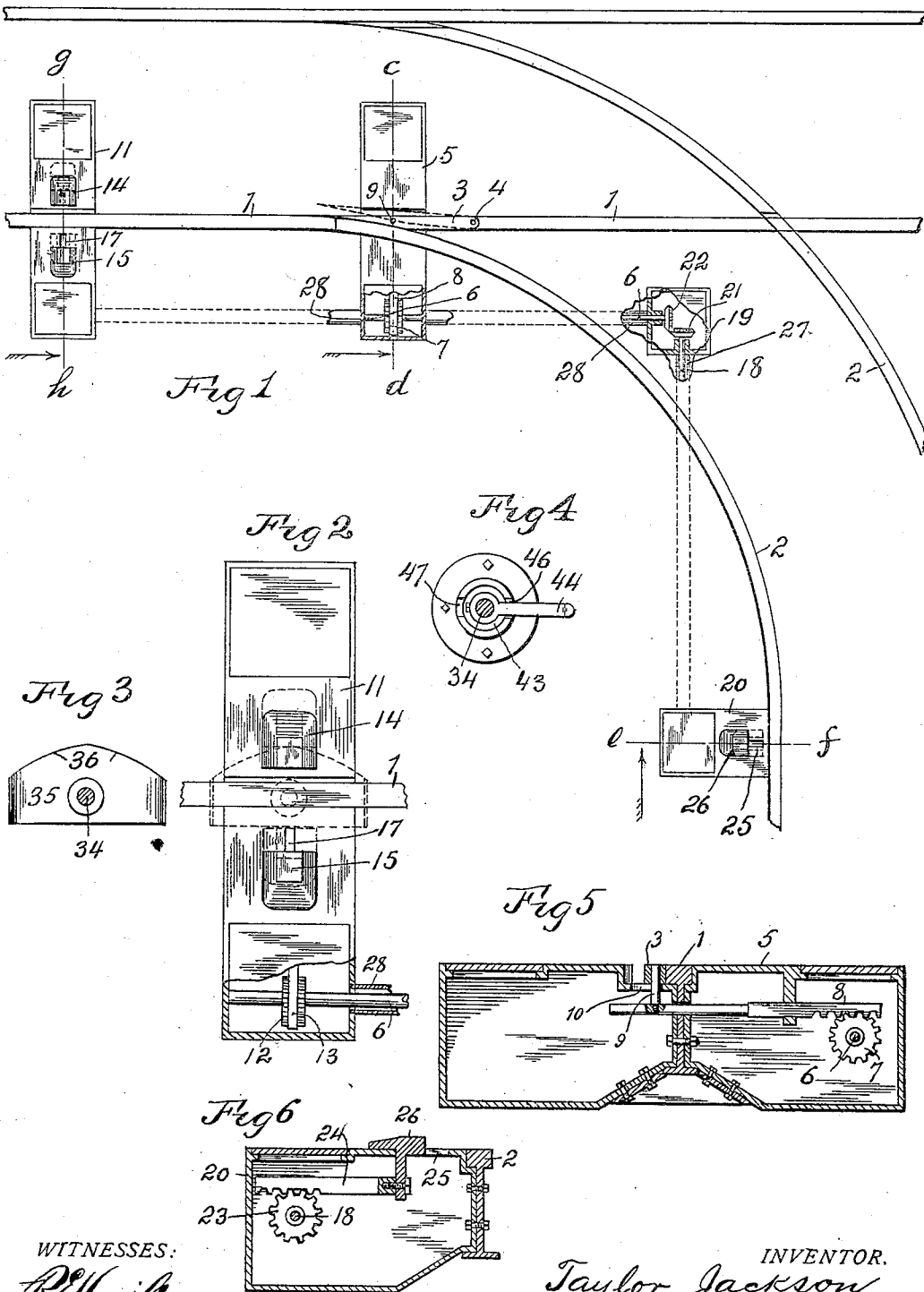


T. JACKSON.
RAILWAY SWITCH.
APPLICATION FILED APR. 18, 1908.

935,790.

Patented Oct. 5, 1909.
2 SHEETS—SHEET 1.



WITNESSES:

R. Hamilton
E. B. House

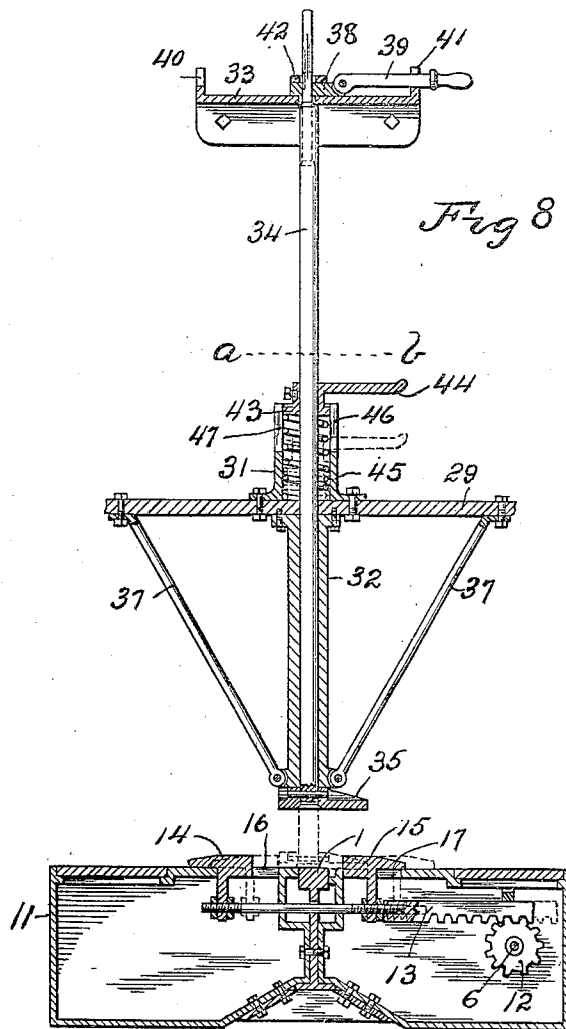
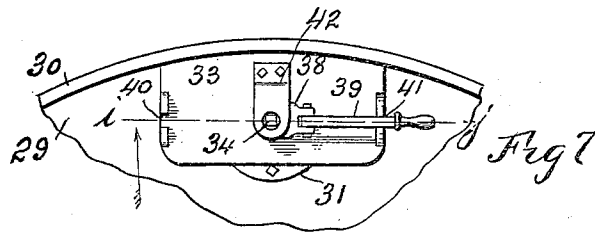
INVENTOR.

Taylor Jackson
BY
Warren D. House
HIS ATTORNEY.

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UNITED STATES PATENT OFFICE.

TAYLOR JACKSON, OF KANSAS CITY, KANSAS.

RAILWAY-SWITCH.

935,790.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed April 18, 1908. Serial No. 427,895.

To all whom it may concern:

Be it known that I, TAYLOR JACKSON, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification.

My invention relates to improvements in railway switches.

It is particularly adapted for use in connection with street railways.

My invention is an improvement upon a railway switch mechanism for which I was granted Letters Patent November 13, 1906, No. 835,532.

The object of my present invention is to provide a simple and effective mechanism by which the operator of a car may throw a switch in advance of the car and without stopping the car.

My invention provides further, novel mechanism by which the operator of the car may, without stopping his car, shift the switch tongue into alinement with the main track after the car has passed upon a branch track.

The novel features of my invention are hereinafter more particularly described and claimed.

In the accompanying drawings illustrative of my invention—Figure 1 is a plan view showing a main and branch track equipped with my improved switch mechanism. In this view a portion is broken away to show the mechanism connecting the two rotary shafts. Fig. 2 is an enlarged plan view of the mechanism for rotating the main shaft. In this view the shoe carried by the car is shown in dotted lines in engagement with one of the shifting shoes. Fig. 3 is a plan view of the operating shoe carried by the car. Fig. 4 is a cross section taken on the dotted line *a—b* of Fig. 8. Fig. 5 is a vertical section taken on the dotted line *c—d* of Fig. 1. Fig. 6 is a vertical section taken on the dotted line *e—f* of Fig. 1. Fig. 7 is a plan view of a portion of a platform of a car and of the switch operating mechanism carried thereby. Fig. 8 is a vertical sectional view taken on the dotted line *g—h* of Fig. 1 and upon the dotted line *i—j* of Fig. 7, the switch operating mechanism carried by the car being shown directly above and in operative position relative to the main shaft rotating mechanism. In this view the track

mechanism and the mechanism carried by the car are shown in dotted lines in the positions occupied by them when they are engaged with each other.

Similar characters of reference denote similar parts.

1 denotes the main track rails, 2 the branch track rails, and 3 the ordinary switch tongue pivoted at 4 to the main track and coöperating in the usual manner with the main and branch tracks. Secured transversely under the switch tongue 3 is a rectangular box or casing 5, through which, parallel with the main track 1, extends a rotary shaft 6. Within the casing 5 a pinion 7, secured upon the shaft 6, meshes with a rack bar 8 slidably mounted in the casing 5 and transversely through a hole provided in the adjacent track rail 1. A vertical pin 9, has its lower end secured to the rack bar 8 and its upper end secured in the tongue 3. A slot 10 is provided in the upper side of the casing 5 to receive the pin 9. Some distance to the left of the casing 5, as shown in Fig. 1, is provided a similar rectangular box or casing 11, disposed transversely to and below the adjacent rail 1. Within the casing 11, as shown in Fig. 8, is a pinion 12 which is secured upon the main shaft 6 and meshes with a horizontal rack bar 13, which extends through a transverse hole provided in the adjacent rail 1 and is slidably mounted in suitable bearings provided therefor in the casing 11. Two track shoes, 14 and 15, respectively extend through two slots, 16 and 17, provided in the upper side of the casing 11 at opposite sides of the rail 1. The lower end of the shifting shoes, 14 and 15, are rigidly secured to the rack bar or member 13. The shoes 14 and 15 are adapted to be engaged by a device carried by a car running on the main track 1 so as to be shifted in opposite directions, thereby shifting the rack bar 13 in opposite directions and causing the switch tongue 3 to be shifted to and fro through the intermediacy of the pinions 7 and 12, shaft 6, rack bar 8 and pin 9. Parallel to the branch track 2 and at right angles to the shaft 6, is a shaft 18, which, at its ends, extends through and is rotatively mounted respectively in the adjacent sides of two rectangular boxes or casings 19 and 20 respectively. Two bevel gear wheels, 21 and 22, which mesh with each other, are secured respectively upon the shafts 18 and 6 with-

in the casing 19. As shown in Fig. 6, a pinion 23 is secured upon the shaft 18 within the casing 20. Meshing with the pinion 23 is a horizontal rack bar 24 slidably mounted within the casing 20, transversely to the branch track 2, to the outer side of which the casing 20 is secured. Slidably mounted upon the upper side of the casing 20 toward and from the adjacent rail 2, in a vertical slot 25, provided in the upper side of the casing 20, is a shoe 26, the lower end of which is rigidly secured to the rack bar 24. A horizontal tube 27 extends between the casings 19 and 20 and incloses the shaft 18. Two similar tubes 28 encircle the shaft 6 and connect the casing 5 with the casings 11 and 19 respectively.

Referring to Figs. 7 and 8, 29 denotes the platform and 30 one of the dash boards of a car. Two vertical tubes, 31 and 32, are secured at their adjacent ends to the upper and lower sides respectively of the platform 29. Above the platform 29, to the inner side of the dash board, is secured a horizontal bracket 33. A vertical operating bar 34 extends through the tubes 31 and 32, and through openings provided therefor in the platform 29 and bracket 33. The bar 34 is vertically slidable and has secured to its lower end a horizontal shoe 35, provided at one edge with two oppositely inclined cam surfaces 36, as shown in Fig. 3. Upwardly and outwardly inclined braces 37 are secured at their lower ends to the lower end of the tube 32 and at their upper ends to the platform 29. The upper end of the bar 34 is square in cross section and has fitted thereon a horizontal plate 38 to which is pivoted one end of a vertically swinging lever 39, disposed above the bracket 33, and adapted to rest in diametrically opposite recesses 40 and 41, provided in the upper side of the bracket 33. A horizontal plate 42 is secured to the upper side of the bracket 33, and is provided with a hole through which the bar 34 extends and in which said bar is rotative. The plate 42 serves to retain the plate 38 against vertical movement.

Secured upon the rod 34 and vertically movable in the tube 31, is a depressing member 43, provided with a horizontal arm 44, adapted to support the foot of the operator when the bar 34 is depressed. A coil spring 45 encircles the bar 34 and has its lower end resting upon the platform 29 and its upper end bearing against the member 43. Said spring serves normally to retain the bar 34 in the raised position shown in solid lines in Fig. 8. In the upper end of the tube 31 are vertical diametrically opposite slots 46 and 47 which are adapted to receive the arm 44 when the bar 34 is depressed.

When the switch tongue 3 is in alinement with the main track 1, as shown in Fig. 1,

the shoes 14, 15 and 26 will be in the positions shown in solid lines in Figs. 1, 2 and 6. If an operator of a car running on the main track toward the switch in the direction indicated by the arrows adjacent to the main track in Fig. 1 desires to run the car onto the branch track 2, he swings the lever 39 upwardly out of the notch 41 and then rotates the bar 34 by means of the lever 39 to a position in which the lever will be above the notch 40. The lever 39 is then swung downward into the notch 40 and the operator depresses the bar 34 by pressure applied upon the arm 44. The shoe 35 at this time will be positioned as shown in Fig. 2, in dotted lines and in position such that the shoe 35 will engage the shoe 14 and force the latter shoe to the position shown in dotted lines in Fig. 2. This movement of the shoe 14 will also shift the bar 13, thus rotating the shaft 6, by means of the pinion 12, in a direction such that the switch tongue 3 will be swung inwardly out of alinement with the track 1. The operator then reverses the shoe 35. The car will then pass upon the branch track 2 and when the shoe 35 arrives opposite the shoe 26, the latter shoe will be forced from the position shown in dotted lines to the position shown in solid lines in Fig. 1. The shoe 26 in being forced in the direction just described will move with it the bar 24 thereby rotating the pinion 23 in a direction such that the shafts 18 and 6 will be turned so as to swing the switch tongue 3, through the intermediacy of the pinion 7, bar 8 and pin 9, to a position in alinement with the main track 1, as shown in solid lines in Fig. 1. The continuity of the main track will thus be restored.

For the purpose of shifting the shoes 14 and 15 from the position shown in dotted lines in Fig. 1 to the position shown in solid lines in said figure, so as to swing the switch tongue 3 into alinement with the track 1, the operator of a car running on the main track turns the bar 34 to the position shown in Fig. 8 by means of the lever 39. He then depresses said bar 34 by placing his foot on the arm 44, thus disposing the shoe 35 so that it will engage the shoe 15 and force the latter shoe to the position shown in solid lines in Fig. 1. In so shifting the shoe 15, the shaft 6 will be rotated by the pinion 12 actuated by the bar 13 in a direction such that the switch tongue 3 will be swung into alinement with the main track 1 through the intermediacy of the pinion 7, bar 8 and pin 9. At the same time the shoe 26 will be moved to the position shown in solid lines in Fig. 1 through the intermediacy of the bar 24, pinion 23, shaft 18 and bevel gears 21 and 22.

My invention may be modified in different ways, within the scope of the appended claims, without departing from its spirit.

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

1. The combination with a laterally movable switch tongue, of a movable rack bar for swinging said tongue, a rotary shaft, a pinion secured to said shaft and meshing with said rack bar, a second movable rack bar, a second pinion secured to said shaft and meshing with said second rack bar, means for shifting the second rack bar in opposite directions, and means carried by a car for actuating said shifting means.

2. The combination with a laterally movable switch tongue, of a rotary shaft, means for oscillating said switch tongue when said shaft is rotated in opposite directions, a pinion secured to said shaft, a movable rack bar meshing with said pinion, means connected with said rack bar for shifting the rack bar in opposite directions, and means carried by a car for actuating said shifting means.

3. The combination with a laterally movable switch tongue, of a rotary shaft, means for oscillating the switch tongue when said shaft is rotated in opposite directions, a movable rack bar, a pinion secured to said shaft and meshing with said rack bar, a shoe secured to said rack bar for shifting the same, and a device carried by a car and movable to and from a position in which it will engage and move said shoe.

4. The combination with a laterally movable switch tongue, of a rotary shaft, means for oscillating the switch tongue when the shaft is rotated in opposite directions, a movable rack bar, two shoes secured to said rack bar by which the rack bar is shifted in opposite directions, a pinion secured to said shaft and meshing with said rack bar, and a device carried by a car and movable thereon to and from positions in which it will engage and shift said shoes in opposite directions respectively.

5. The combination with a laterally movable switch tongue, of a rotary shaft, two movable rack bars one being fastened to said tongue, two pinions secured to said shaft and meshing respectively with said rack bars, a shoe secured to one of said rack bars for shifting the same in one direction, and a device carried by a car and movable thereon to and from a position in which it will engage and shift said shoe.

6. The combination with a laterally movable switch tongue, of a rotary shaft, two rack bars movable each in opposite directions one being fastened to said tongue, two shoes carried by one of said rack bars for shifting the same in opposite directions, two pinions secured to said shaft and meshing respectively with said rack bars, and a device carried by a car and movable to and from two positions in which it will engage

and move said shoes respectively in opposite directions.

7. The combination with a laterally movable switch tongue, of a main and a branch track with which said switch tongue co-operates, a rotary shaft, means by which said switch tongue is shifted to and from a position in alinement with the main track when said shaft is rotated in opposite directions, means adapted to be actuated by a car running on the main track for rotating said shaft in opposite directions, and means adapted to be actuated by a car running on the branch track for rotating said shaft in a direction such that the switch tongue will be moved to the aforesaid position.

8. The combination with a laterally movable switch tongue, of a main and a branch track with which said switch tongue co-operates, two rotary shafts disposed parallel with said two tracks respectively, means for transmitting rotation from one to the other of said shafts, means by which when the shaft parallel with the main track is rotated in opposite directions the switch tongue will be shifted to and from a position in alinement with the main track, means adapted to be actuated by a car running on the main track for rotating in opposite directions the shaft which is parallel with the main track, and means adapted to be actuated by a car running on the branch track for rotating the shaft which is parallel with the branch track in a direction such that the switch tongue will be moved into alinement with the main track.

9. The combination with a laterally movable switch tongue, of a main and a branch track with which said switch tongue co-operates, two rotary shafts disposed respectively parallel with said two tracks, gearing connecting said shafts, means by which the shaft which is parallel with the main track is rotated in opposite directions, a pinion secured to the shaft which is parallel to the main track, a movable rack bar meshing with said pinion, means by which, when said rack bar is moved in opposite directions the switch tongue is moved to and from a position in alinement with the main track, means for rotating the shaft which is parallel with the branch track in a direction such that the switch tongue will be moved into alinement with the main track, and means carried by a car for operating the rotating means connected with said two shafts.

10. The combination with a laterally movable switch tongue, of a main and a branch track with which said tongue co-operates, two rotary shafts disposed respectively parallel with said two tracks, gearing connecting said two shafts, means for shifting said switch tongue to and from a position in alinement with the main track when the shaft which is parallel with the main track

is rotated in opposite directions, two rack bars, two pinions secured respectively to said two shafts and meshing respectively with said rack bars, and means adapted to be
5 actuated by cars running on said tracks for moving said rack bars respectively to rotate said pinions.

11. The combination with a laterally movable switch tongue, of a main and a branch
10 track with which said tongue coöperates, two rotary shafts disposed respectively parallel with said two tracks, gearing connecting said two shafts, two movable rack bars, means connected with one of said rack bars
15 for shifting said switch tongue to and from a position in alinement with the main track, means adapted to be actuated by a car run-

ning on the main track for moving the other rack bar in opposite directions, two pinions secured to the shaft which is parallel to the
20 main track and meshing respectively with said rack bars, a pinion secured to the other shaft, a third rack bar meshing with the last named pinion, and means connected with the
25 last named rack bar and adapted to be actuated by a car running on the branch track for moving said rack bar in one direction.

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

TAYLOR JACKSON.

Witnesses:

E. B. HOUSE,
J. C. IRWIN.