No. 748,508. PATENTED DEC. 29, 1903.

A. KING.

SWITCH OPERATING APPARATUS FOR TRAMWAY OR OTHER CARS.

APPLICATION FILED JUNE 10, 1903.

NO MODEL.

Fig. 1.

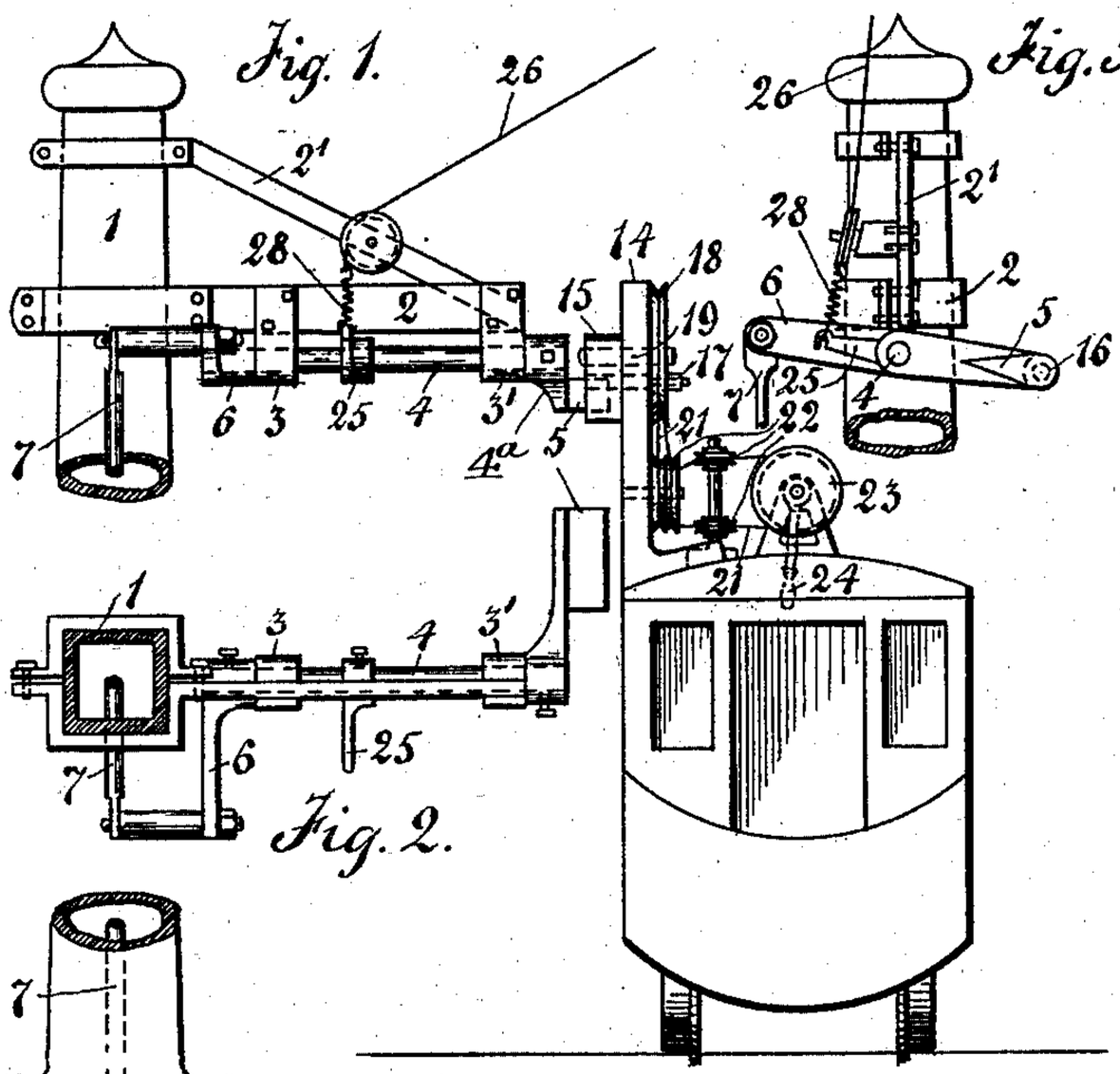


Fig. 3.

Fig. 2.

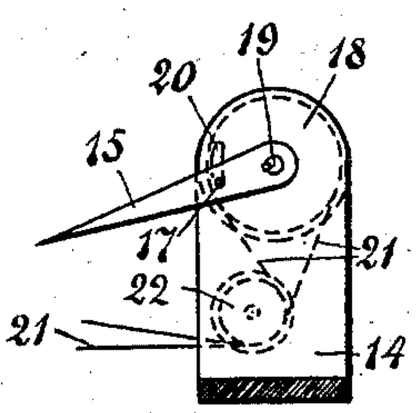


Fig. 6.

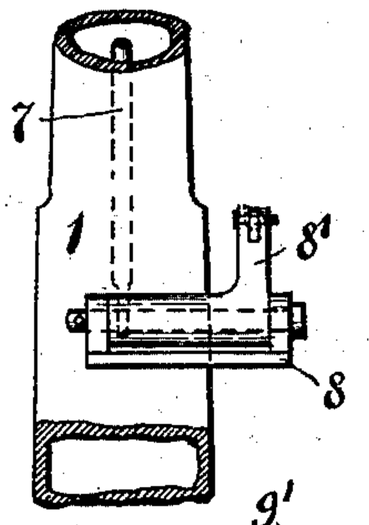


Fig. 4.

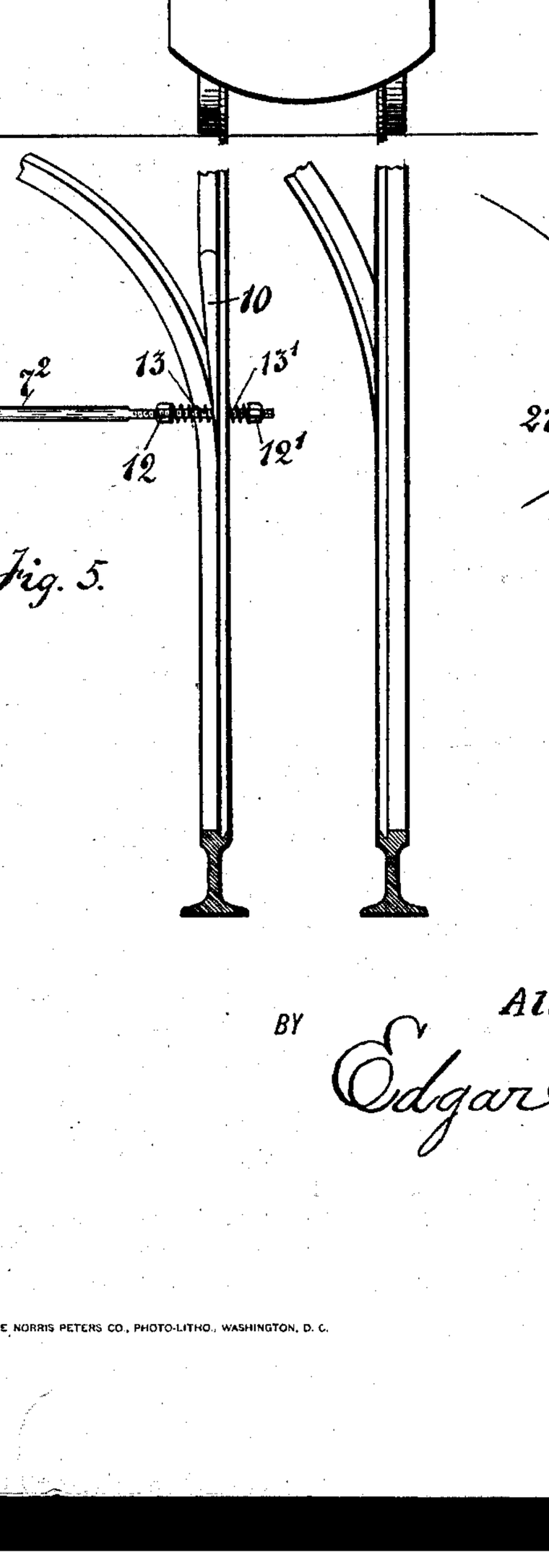


Fig. 5.

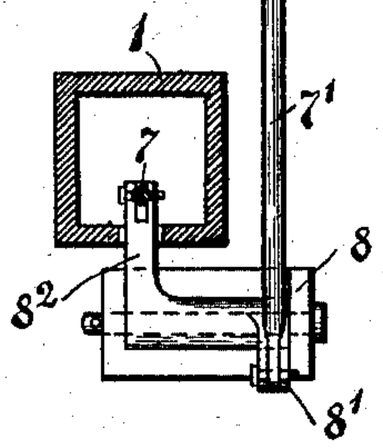
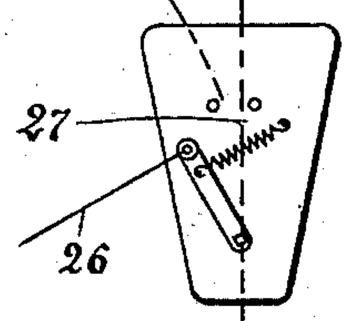


Fig. 7.



WITNESSES

Eric Tidestrom.

F. A. Stewart

INVENTOR

Albert King

BY Edgar Tate & Co

ATTORNEYS

No. 748,508. Patented December 29, 1903.

UNITED STATES PATENT OFFICE.

ALBERT KING, OF NOTTINGHAM, ENGLAND.

SWITCH-OPERATING APPARATUS FOR TRAMWAY OR OTHER CARS.

SPECIFICATION forming part of Letters Patent No. 748,508, dated December 29, 1903.

Application filed June 10, 1903. Serial No. 160,894. (No model.)

To all whom it may concern:

Be it known that I, ALBERT KING, residing at 60 Wilford Grove, Nottingham, in the county of Nottingham, England, have invented certain new and useful Improvements in Switch-Operating Apparatus for Tramway or other Cars, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

My invention is an improvement in apparatus which enables the driver of a car to have control of the movement of the points or switch-tongues of tramway or railway lines by the movement of a small lever at any part of the route.

A portion of the apparatus is carried and supported over and above the ordinary vehicular traffic of the road and is operated by the passing of a car by a projection from the top or at the side of the car coming in contact with and moving the overhead portion of the apparatus, which movement is transmitted by suitable means to the points.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which—

Figure 1 is an end view of a car and showing the switch-operating apparatus, part of which is connected with the car and part with a support adjacent to the track; Fig. 2, a plan view of that part of the apparatus connected with the support adjacent to the track; Fig. 3, a view at right angles to that of Fig. 1 and showing that part of the apparatus connected with the support adjacent to the track; Fig. 4, a side view of the bottom part of the support adjacent to the track; Fig. 5, a plan view thereof and also of a part of the track and track mechanism; Fig. 6, a side view of a part of the mechanism connected with the car, and Fig. 7 a plan view of the wire or conductor switch.

The apparatus consists of an upright support or pillar 1, placed in a suitable position in relation to the points or switch-tongues of tramway-lines, and to the pillar 1 a projecting arm 2 and a strengthening-stay 2″ are fastened at the required height from the ground, and the arm 2 has two bearings 3 and 3′ secured thereto and which carry the shaft 4. On the shaft 4, at the end nearest the car, is fastened a lever 4^a, having a wedge-shaped part 5, which is seen best in Fig. 3, and by which movement is given to the shaft 4 by a car. At the other end of the shaft 4 is fastened an ordinary lever 6 to give movement to the underground portion of the apparatus by means of the connecting-rod 7, which reaches down to the right-angle levers 8′ and 8^2, carried by the bracket. (Best shown in Fig. 4.) The movement given by the connecting-rod 7 to the right-angle levers 8′ and 8^2, carried by the bracket 8, is continued through connecting-rods 7′ and 7^2 and right-angle levers 9 and 9′ to the point 10. The connecting-rod 7^2 is screw-threaded at the end connecting the point 10, and a nut 12 and a pressure-spring 13 are placed on one side of the point 10 and another spring 13′ and nut 12′ on the other side of the point 10, and the nuts and springs allow the apparatus to move more than the point, and therefore compensate for the difference in the height of the cars when loaded or empty. To give the necessary movement to the lever 4^a at the end of the shaft 4 by the passing of a car, there is an upright projection 14, fixed on the top or top side of the car, carrying an axle and truck or other device in the shape of a movable inclined plane or lever or wedge-shaped lever 15, which shall be adjustable, so that the wedge-shaped lever 15 can be made to strike the wedge-shaped part of the lever 4^a underneath or on the top, as required, and thereby move the point or switch-tongue either way, according to the direction the car is required to take. Instead of having the wedge-shaped part 5 on the lever 4^a there can be a truck and axle 16, as shown in dotted lines in Fig. 3, or, if the wedge-shaped part on lever 4^a is preferred, there can be a truck and axle fixed in the place of the bolt 17 in the disk 18 instead of the wedge-shaped lever 15.

To enable the driver of the car to adjust or control the movement of the truck and axle or movable inclined plane or lever or wedge-shaped lever 15, as shown in the drawings, there is an axle 19, having a bearing in the projection 14, and on the outside of the

projection 14 the wedge-shaped lever 15 is keyed on to one end of the axle 19, and on the inside of the projection 14 is keyed a grooved disk 18, and there is an axle or bolt 17, which connects the wedge-shaped lever 15 and the disk 18, and said bolt 17 passes through a slot or opening 20 in the projection 14 and acts as a stop for the bolt 17 and wedge-shaped lever 15. To the disk 18 is fastened a wire cable 21, which passes round the grooved pulleys 22 and is again fastened to the disk 23, which has a handle or lever 24, which the driver moves to the right or left, as required.

In the tramway system known as the "overhead trolley-wire system," where the apparatus has to move the overhead wire switch or point at the same time as the point of the rail, there is an additional lever 25 placed on the shaft 4, to which a cord or chain 26, operating the wire-switch 26, is fastened, with the addition of an elastic steel spring 28 or india-rubber spring to compensate for the restricted movement of the wire-switch 27.

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

1. A switch-operating apparatus comprising an upright support having a projecting arm, a shaft supported by said arm, a lever connected with said shaft, and devices connected with a car and adapted to operate with said lever, said shaft being in operative connection with the switch tongue or point, substantially as shown and described.

2. A switch-operating apparatus comprising a support adjacent to the track, a shaft connected with said support, a lever connected with said shaft a part of which is wedge-shaped in form, said shaft being in operative connection with the switch point or tongue, and devices connected with a car for operating said lever and shaft, substantially as shown and described.

3. A switch-operating apparatus comprising a support adjacent to the track, a shaft connected therewith and in operative connection with the switch point or tongue, a lever connected with said shaft part of which is wedge-shaped in form, a support connected with a car and provided with a lever which is adapted to operate in connection with the first-named lever, and means connected with the car for adjusting the position of the last-named lever, substantially as shown and described.

4. In an apparatus for operating the switches of a trolley-railway, a support adjacent to the track, an arm connected with said support, a shaft supported by said arm and in operative connection with the switch tongue or point, a lever connected with said shaft and adapted to be operated by devices connected with a car, said shaft being also in operative connection with a wire or trolley switch, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 22d day of May, 1903.

ALBERT KING.

Witnesses:
THOS. H. COOK,
ERNEST MORAN.