C. A. PINGREE.

Switch Mechanism for Street-Railway.

No. 215,069. Patented May 6, 1879.

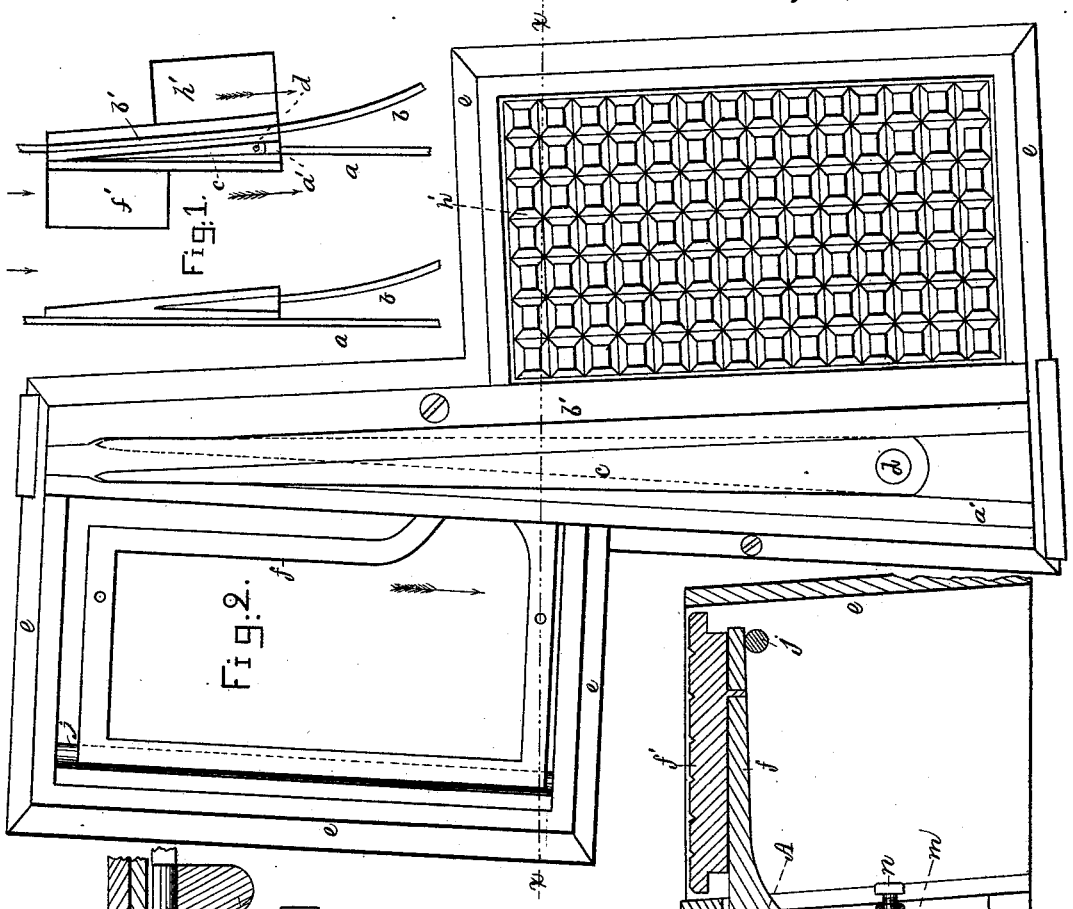

Fig. 1.

Fig. 2.

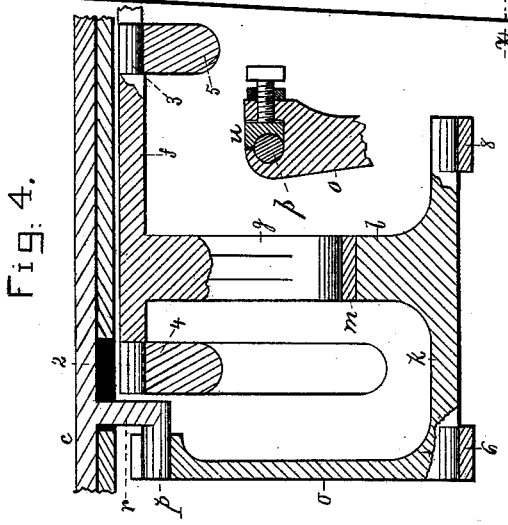

Fig. 4.

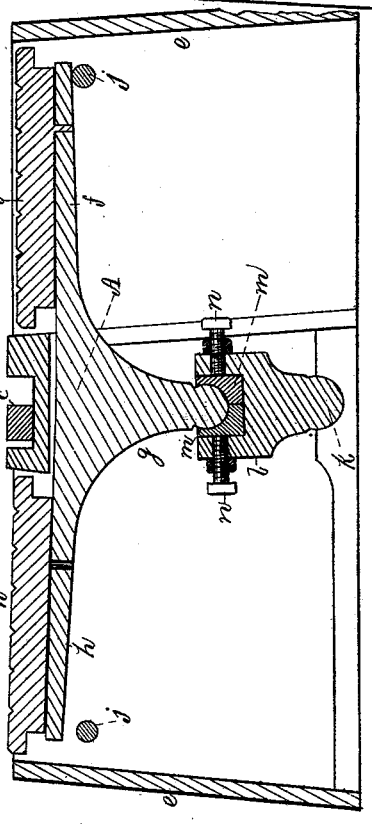

Fig. 3

Witnesses.

G. F. Connor

A. Hinemadel

Inventor.

Charles A. Pingree,

by Crosby & Gregory, Atty's.

UNITED STATES PATENT OFFICE.

CHARLES A. PINGREE, OF CAMBRIDGEPORT, MASSACHUSETTS, ASSIGNOR TO A. MORRILL AND A. F. ALLEN, OF SAME PLACE.

IMPROVEMENT IN SWITCH MECHANISMS FOR STREET-RAILWAYS.

Specification forming part of Letters Patent No. **215,069**, dated May 6, 1879; application filed February 20, 1879.

To all whom it may concern:

Be it known that I, CHAS. A. PINGREE, of Cambridgeport, county of Middlesex, State of Massachusetts, have invented an Improvement in Switch Mechanisms for Street-Railways, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to improvements in street-railway switch mechanism, and has special reference to such construction thereof that the horses need not be turned off at one side the main track when it is desired to retain the car upon the main track should the switch to a curve be open. This is accomplished by placing one part of the rocker which supports one of the covers or platforms outside the main track, and in advance of that part of the rocker and its platform within the main track, and combining therewith suitable operating mechanism.

Figure 1 represents in top view a diagram showing my improved mechanism in place at a curve. Fig. 2 is a top view of my improved switch-operating mechanism with a part of the main track, the cover of that part of the switch-moving mechanism within and between the rails of the main track being removed. Fig. 3 is a section on the line *x x*, Fig. 2, with both covers in position; and Fig. 4 is a partial longitudinal section.

In the drawings, let *a* represent rails of the main track, and *b* the rails of a left-hand curve. The portion *b'*, Fig. 2, represents a portion of the switch in line with the left-hand rail of the curve, viewing the track in the direction of the arrow, Fig. 1; and *a'*, a rail which joins the left-hand rail of the main track, and *c* the switch-point, pivoted at *d* upon the switch frog-plate. The switch-case *e* is composed of cast-iron plates, having their sides inclined inward toward the top of the case, to thereby avoid all liability of the said case being lifted by frost after being set into the ground. The case is composed of two box-like portions, preferably cast in one piece. The rocker A has two arms or quadrilateral horizontal extensions, *f h*, in opposite directions from the arm *g* at the center of the rocker, and these extensions project, the one to the front and the other toward the rear of the said arm *g*. These extensions are shaped as shown by the extension *f*, Fig. 2, and extension *f* supports cover or platform *f'*, while extension *h* supports cover or platform *h'*. The rocker has journals 2 3, which rest in suitable bearings 4 5 to support it. Near the outer side of each extension is a stopping-bar, *j*, which limits its descent when depressed or rocked, and by the shape and arrangement of the operating devices for the switch-point, as hereinafter described, the platforms in operation descend at their outer ends but half an inch, while in all other switch-operating devices known to me they descend upward of one inch. This slight descent of the table to move the switch is accomplished by connecting the switch-moving shaft *k* and the rocker by means of a toggle-joint, of which the arm *g* forms one member, while the forked part *l*, rising from shaft *k*, forms the other member. The lower end of arm *g* is rounded to fit the adjustable bearing or holding block *m*, held in *l* by set-screws *n*, so as to keep the joint or connection between *g* and *l* in proper working fit.

It is obvious the round end might be on *l*, and the fork on *g*, and accomplish like results.

At the end of shaft *k*, which has its bearings at 6 8, is an arm or lever, *o*, provided with a socket, which embraces a pin, *p*, projecting from a pendant, *r*, connected with the switch-point *c*, the said pin being shown as projecting backward toward the pivoted point *d* of the said switch-point. The frog-plate has in it a slot (shown in heavy black outline, Fig. 4) to receive this pendant and pin *p*, and also a slot in the arc of a circle from *d* as its center, so that the switch-point may be swung on its center *d*.

The portion of the said slot which extends in the direction of the length of the switch-point permits the pin *p* to pass down through it, and then the switch-point is moved longitudinally until its large end is brought in position to be pivoted at *d*, and during this movement of the point *c* the pin *p* is inserted in the socket at the upper end of arm *o* into the position shown in Fig. 4, wherein it will be noticed that the connection of the arm *o* with the pin *p* to move the switch is placed in such position as not to receive upon it the

water and dirt which fall down through the slot in which the pendant *r* moves. This construction makes the table wear longer, and enables the point to be moved with greater ease.

The arm *o* will at top have its socket provided with an adjustable box, *u*. (See detail near Fig. 4.)

Should a car be moving on the main track in the direction of the arrow, Fig. 1, and the switch-point be opened to the curved track, the left-hand horse of the team will tread upon the platform *f'* of the extension *f*, and will turn the rocker to the position shown in Fig. 3, and cause the arm *g* to so turn the arm *l* and rock-shaft *k* as to move the switch-point from the full-line position (see Figs. 1 and 2,) to the dotted position, Fig. 2, thus closing the switch to the curve.

Should it be desired to run upon the curve, the left-hand horse of the team will be driven over the platform *h'* at the left-hand side of the switch, at the commencement of the curve, and will swing the switch-point to the full-line position shown in Figs. 1 and 2.

For a right-hand curve the operation will be just the reverse of that described, except as to direction of movement of the team. The length of the platforms and switch-point will be so proportioned with relation to the distance of the front wheels of the car from the horses that the horse upon the farthest platform may operate the switch-point to the position demanded by weight on that platform before the said car-wheels arrive at the switch-point.

The platforms in this my switch are supported by arms projecting from the rocker, and simply rise and fall, and do not move horizontally and longitudinally on roller-supports at the time when the horses are passing over them.

I claim—

1. In a street-railway switch mechanism, a rocker, A, jointed at its lower end with a switch-moving lever, and extended on each side the switch-rail of the main track, in combination with platforms located one within and the other outside the main track, substantially as and for the purpose described.

2. In a street-railway switch mechanism, a toggle-jointed rocker, A, and switch-moving lever, in combination with two independent platforms, one of which is located within and the other outside the track, and one in advance of the other, substantially as shown and described.

3. The rocker provided with the two extensions *f h*, platforms *f' h'*, and central arm, *g*, combined with the rocker-shaft *k*, provided with an arm jointed to arm *g*, and with an arm, *o*, and switch-point, to operate substantially as described.

4. The frog-plate, slotted as described, combined with the switch-point and its pendent portion, and a pin, *p*, adapted to be connected with devices for operating the switch-point, as described, to protect the joint between the pin and its connected arm or lever from dust and water, as described.

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

CHARLES A. PINGREE.

Witnesses:

G. W. GREGORY,

L. F. CONNOR.